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**DIY: Clutch Replacement pictorial**

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02-13-2010,  
07:16 PM

#1

**SubyRS1**

2.2L

**Car:** 2013  
BRZ...sold the  
99RS :(  
**Fav Mod:** SPT  
cat back  
system  
**My:** [Subaru](#)  
[Parts](#)  
**Join Date:** Dec  
2008  
**Location:** Long  
Beach, CA  
**Trader Rating:**  
(3)  
**Posts:** 154

 **DIY: Clutch Replacement pictorial**

**Do It Yourself: Clutch Replacement. 1999 Subaru 2.5RS. 5-speed Manual Transmission.**

#### **Notes**

This pictorial DIY covers complete disassembly and reassembly over the entire job (no "repeat steps in reverse" finish).

Dissassembly is covered from Steps 1 to 27.

Reassembly is covered from Steps 28 to 52.

This task could take from 12 to 20 hours, depending on how particular you are with cleaning all your parts.

A helper is needed to work the floor jack to lower and raise the transmission while you steady it under the car.



It is helpful to use the ***Electrical & Torque Checklists*** below during reassembly. Check each item off the list as it is completed.

### **Auto Parts**

New Flywheel

New Clutch Disc

New Clutch Pressure Plate assembly

New Throw-out Bearing

New Pilot Bearing

New Clutch Fork Dust Boot (pt # 30542AA040)

New Exhaust Manifold Gaskets (Felpro)

Optional: Flywheel to crank bolts (pt # 800210660)

### **Fluids / Chemicals**

(1) High-Temp (brake) Grease

(4 quarts) Transmission Gear Oil

(1 spray can) Engine Degreaser

WD-40

### **Service Tools**

(1) 2-ton Floor Jack that can reach 19" high minimum

(4) Jack Stands that can reach to 18" minimum height

(1) Subaru scissor jack

(1) Portable Work Light

(3 foot) wood 2x4 (cut for engine support)

Oil drain pan

### **Hand Tools - Special**

(1) Special clutch alignment tool (comes with clutch set usually)

(1) Torque wrench capable of 10 to 110 ft. lbs.

(1) long 1/2" drive breaker bar

(Use 6-point sockets to remove and reinstall all torque spec'd bolts)

(1) 3/16" to 7/32" round flat punch with 1 3/4" reach

(Sockets, Open Ends and Box Ends from 8mm to 17mm)

(1) 13/16" socket (transmission drain bolt)

### **CHECK LIST: Electrical Connectors encountered**

(2) Catalytic converter plugs

(1) Neutral switch plug

(1) Back up switch plug

(1) Transmission Speed Sensor plug

(1) Transmission Ground terminal

(1) Starter + terminal

(1) Starter Solenoid plug

(1) Engine Ground terminal

### **CHECK LIST: Torque Specs encountered**

Flywheel to crank (8 bolts) 53 ft. lbs.

Clutch Pressure Plate (6 bolts) 11.6 ft. lbs.

Transmission Bell Housing (6 bolts + 2 nuts) 36.9ft. lbs.

Clutch Slave Cylinder (2 bolts) 27.5 ft. lbs.

Trans Crossmember / front (2 bolts) 101 ft. lbs.

Trans Crossmember / rear (4 bolts) 51 ft. lbs.

Pitching Stopper / front (1 bolt) 36.2 ft. lbs.

Pitching Stopper / rear (1 bolt) 42 ft. lbs.

Drive Shaft to rear diff. (4 bolts/nuts) 23.1 ft. lbs.

Drive Shaft enter bracket (2 bolts) 38.3 ft. lbs.


Exhaust Manifold (6 nuts) 22.4 ft. lbs.

Exhaust Hanger bracket (1 bolt) 22.4 ft. lbs.


Mid Pipe Spring Joint (2 spring bolts) 13 ft. lbs.

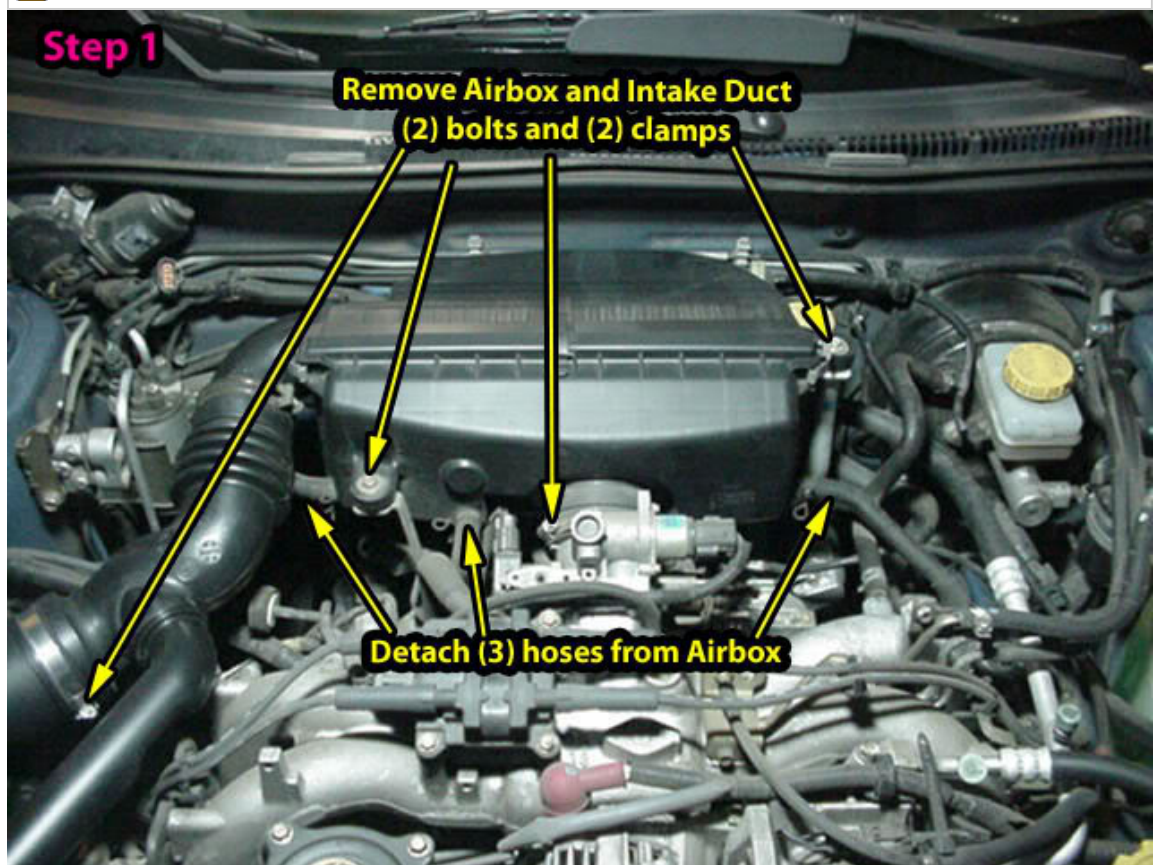
Transmission Drain (1 mag bolt) 32.5 ft. lbs.

### **LETS GET STARTED.**

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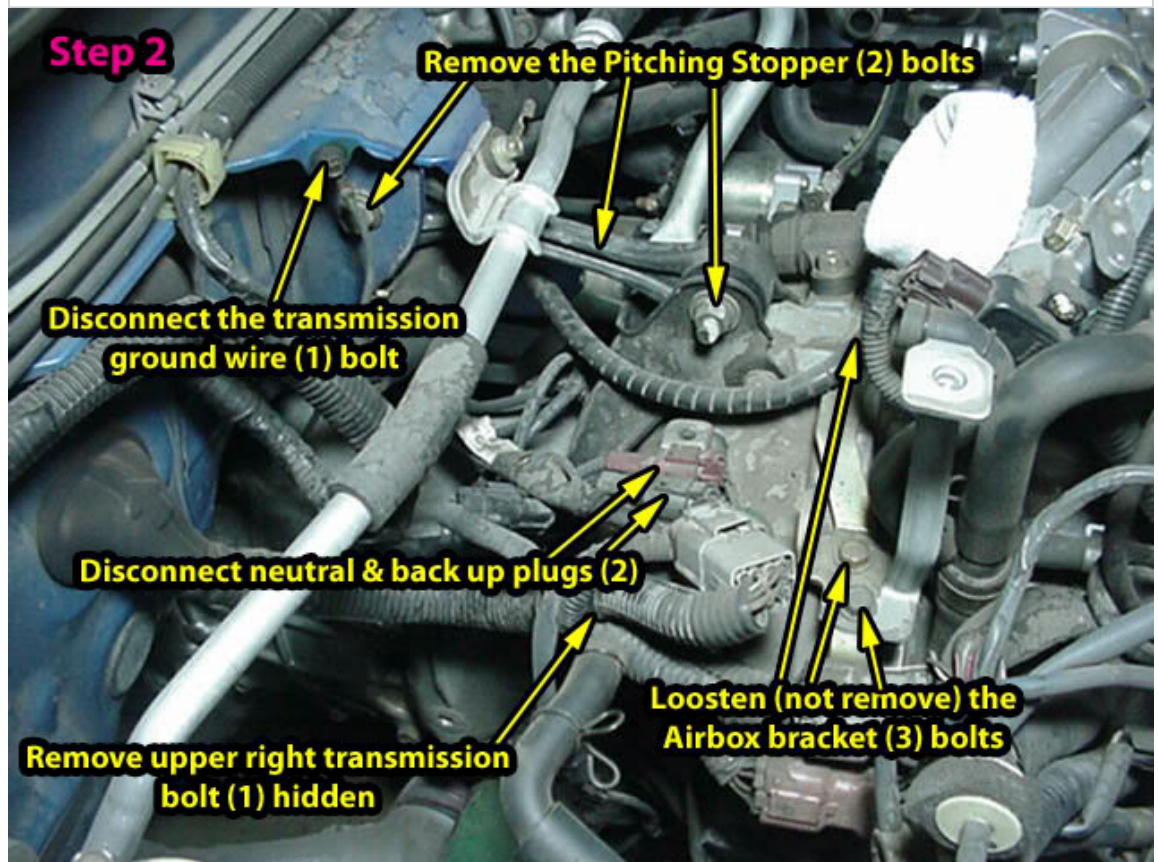


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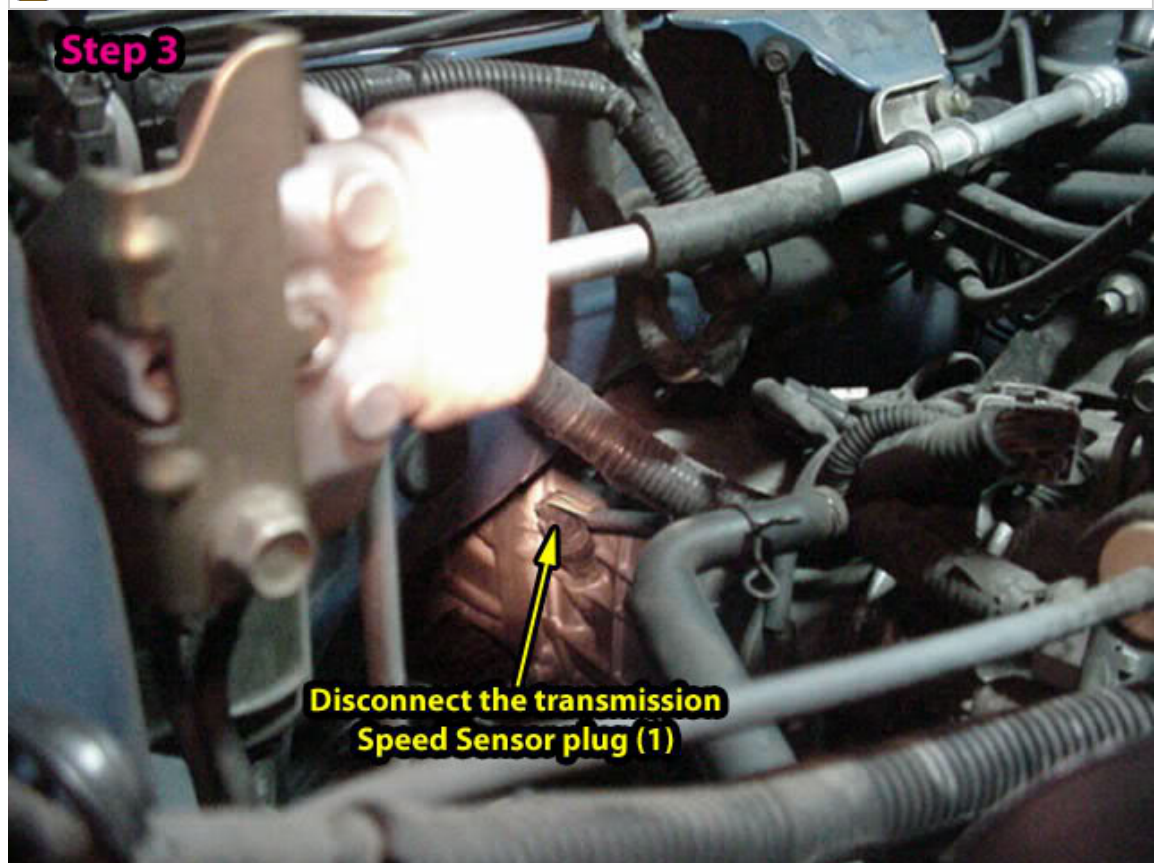




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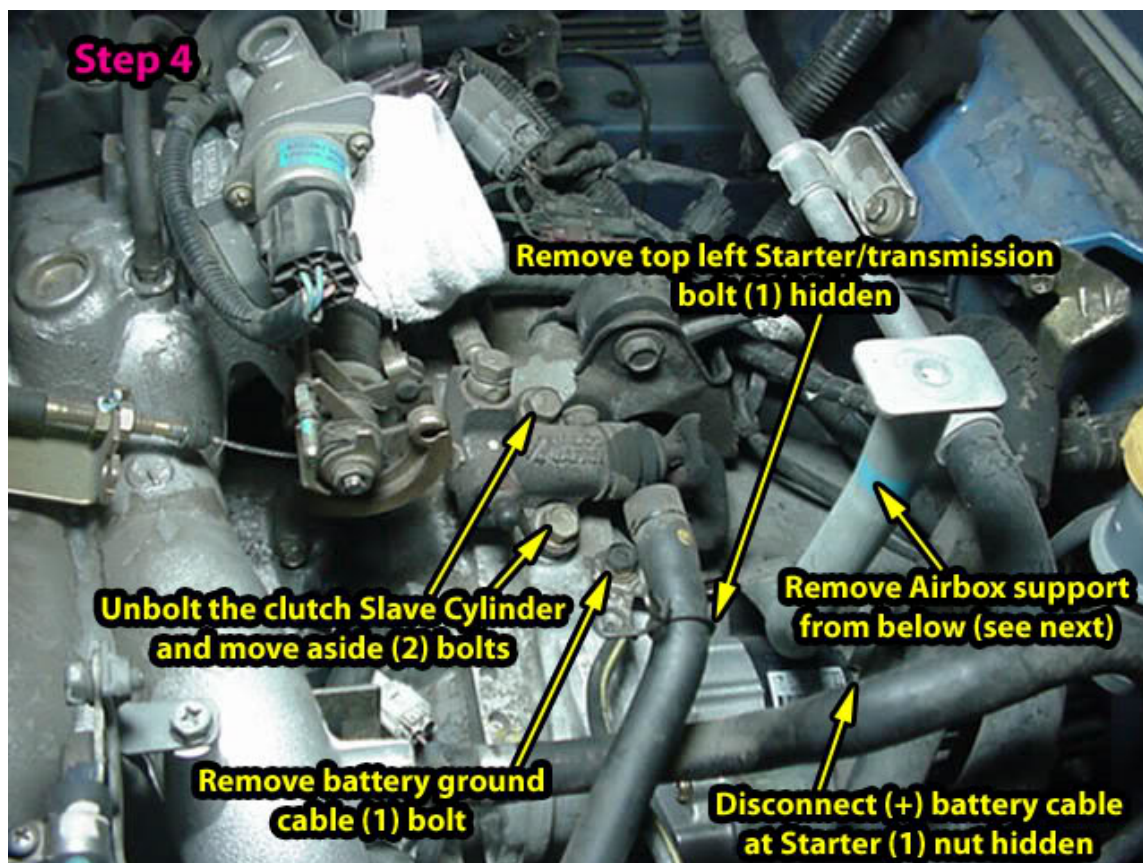


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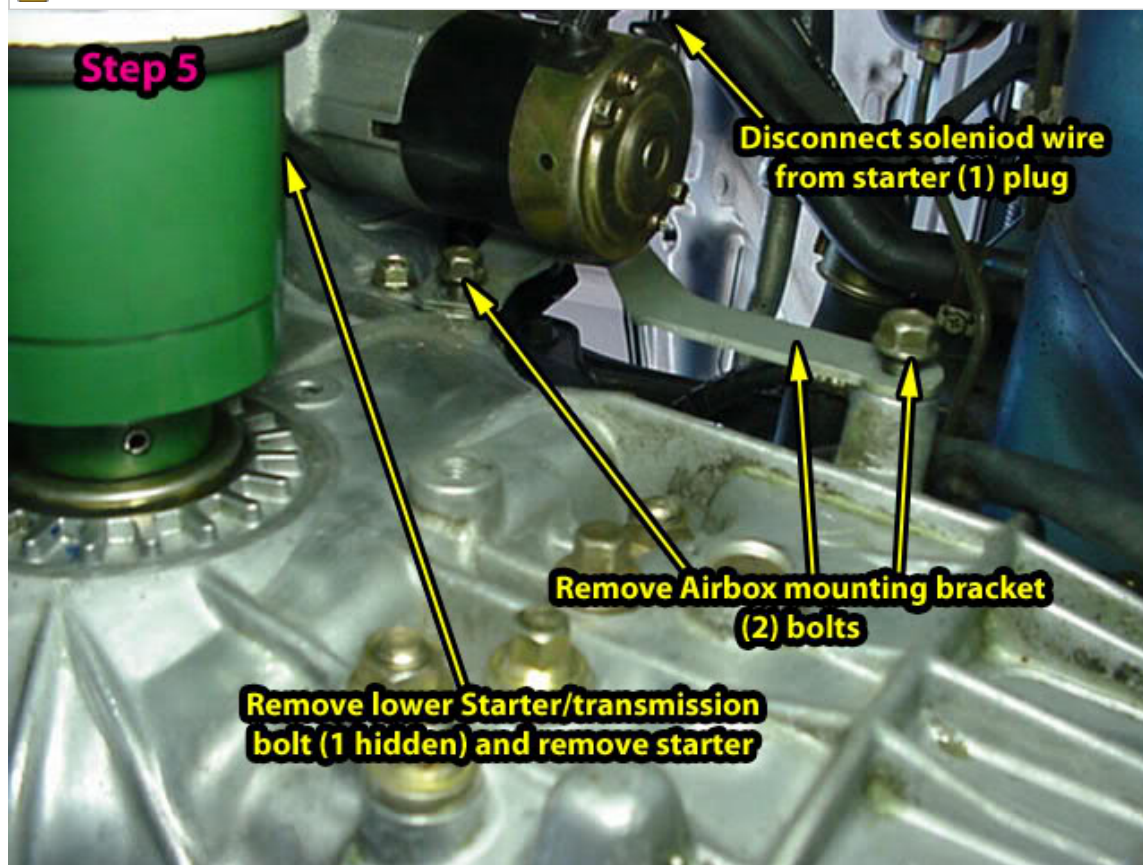


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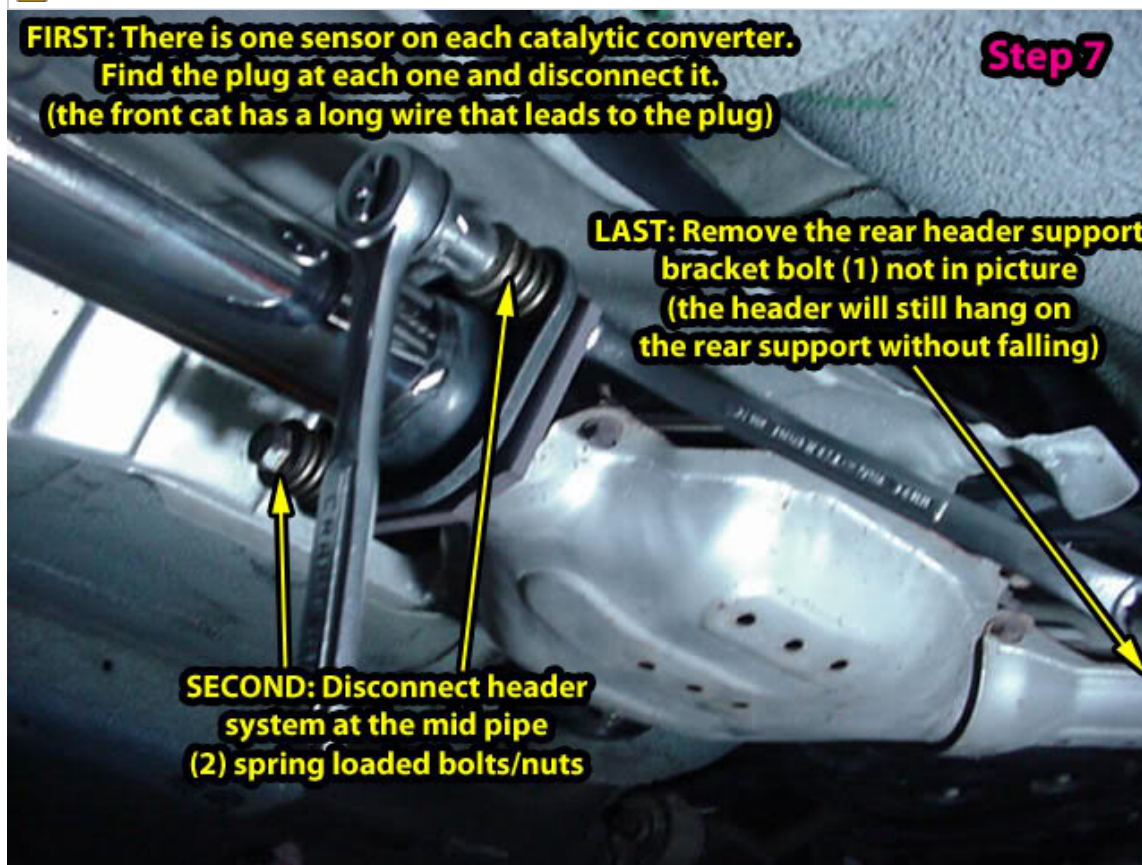


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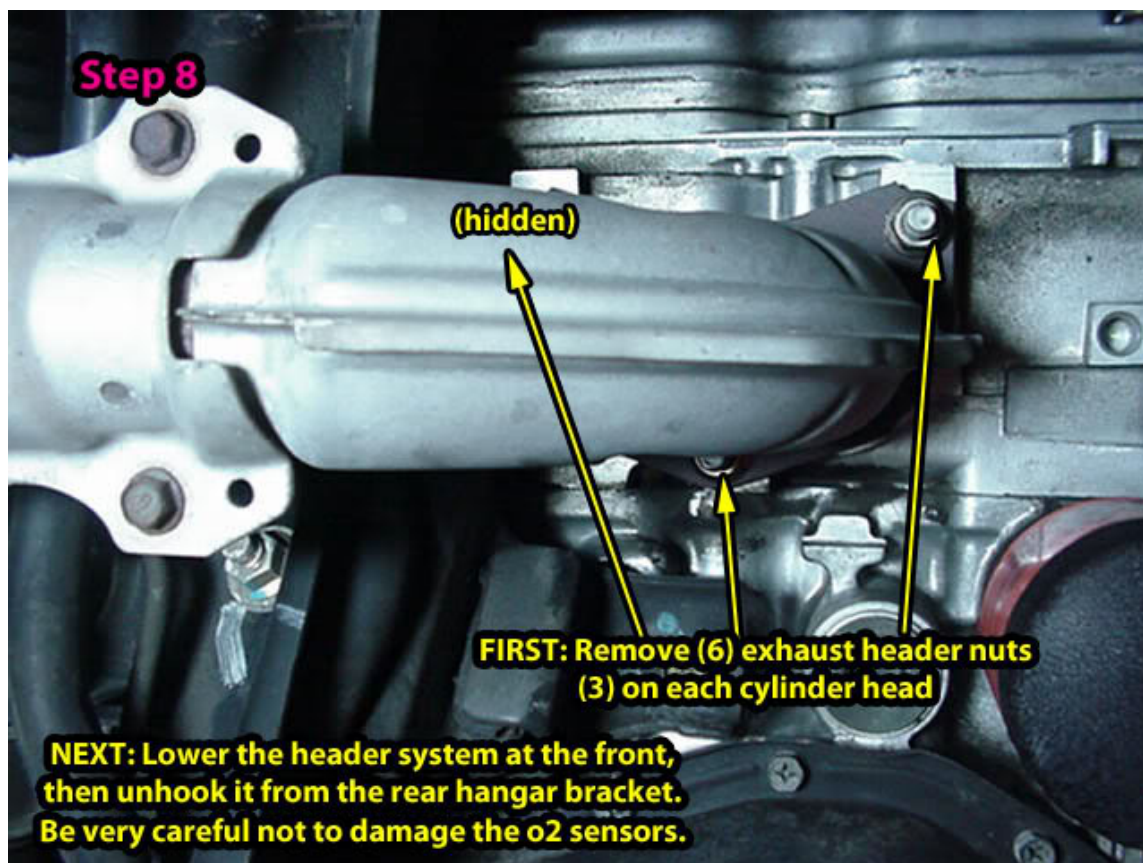


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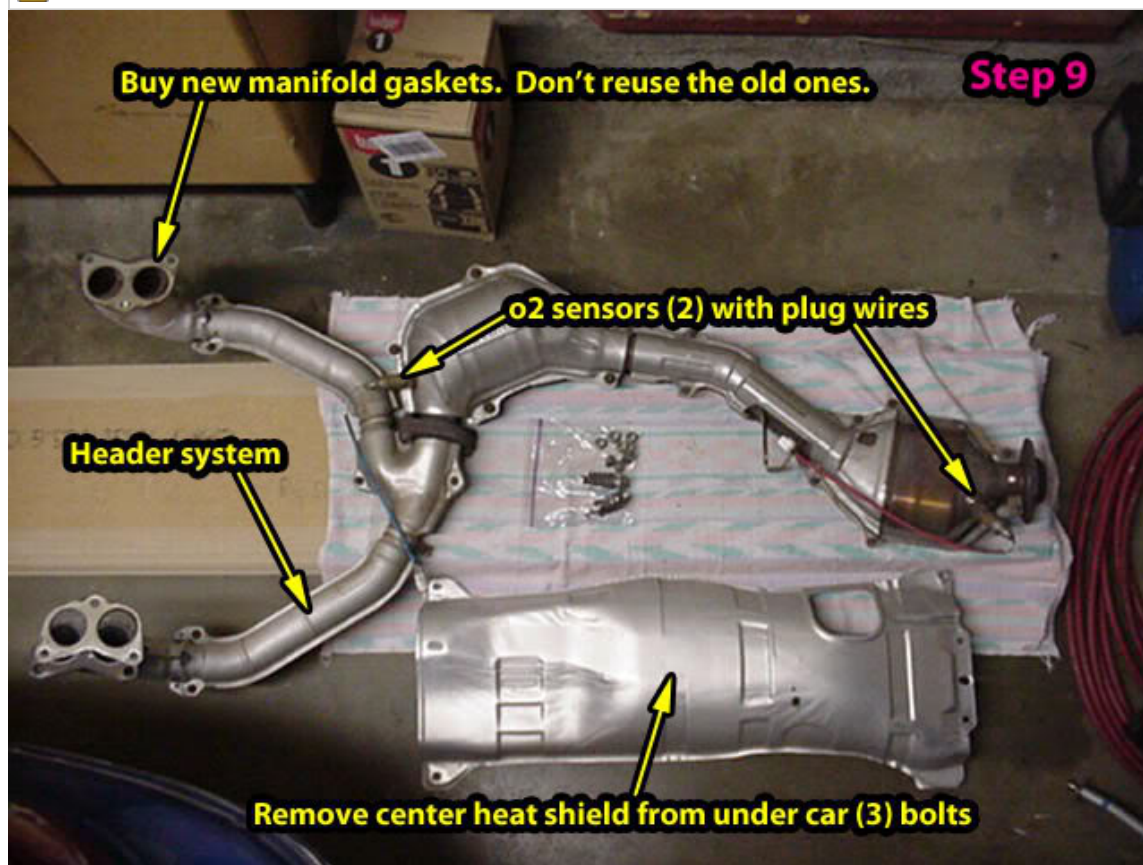


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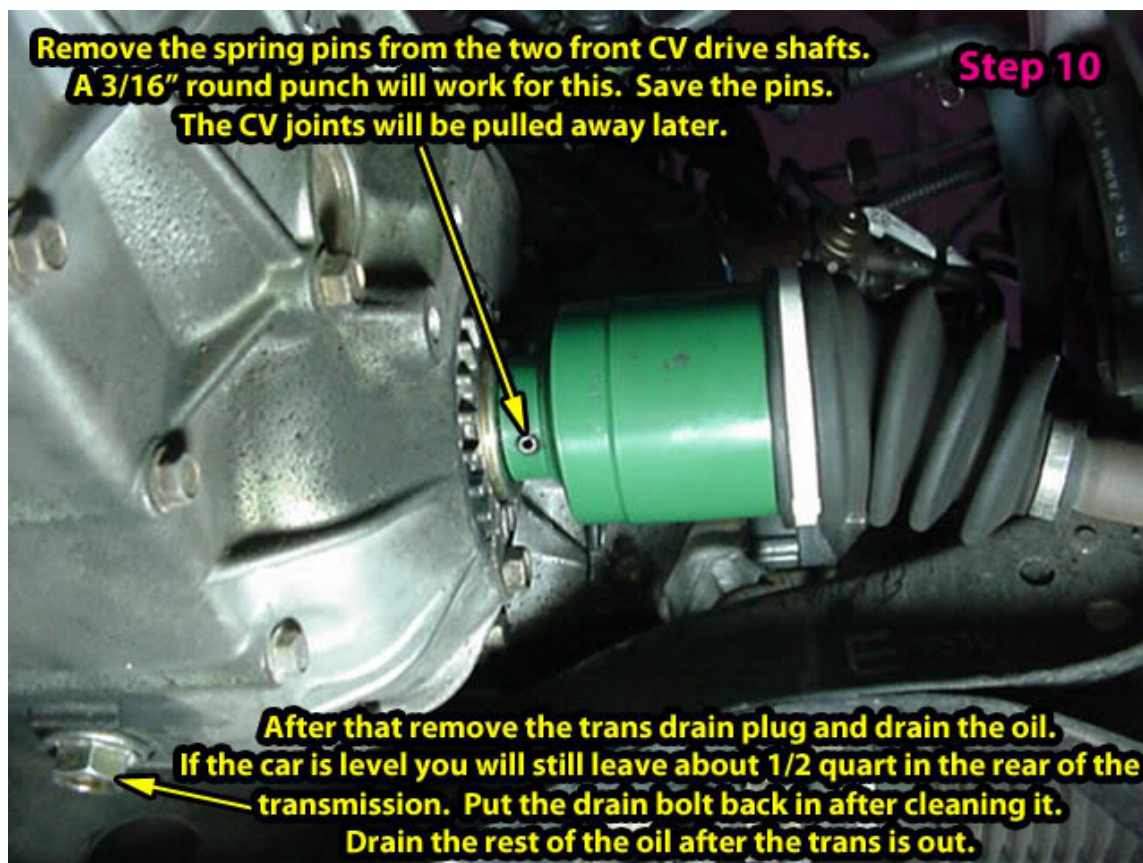


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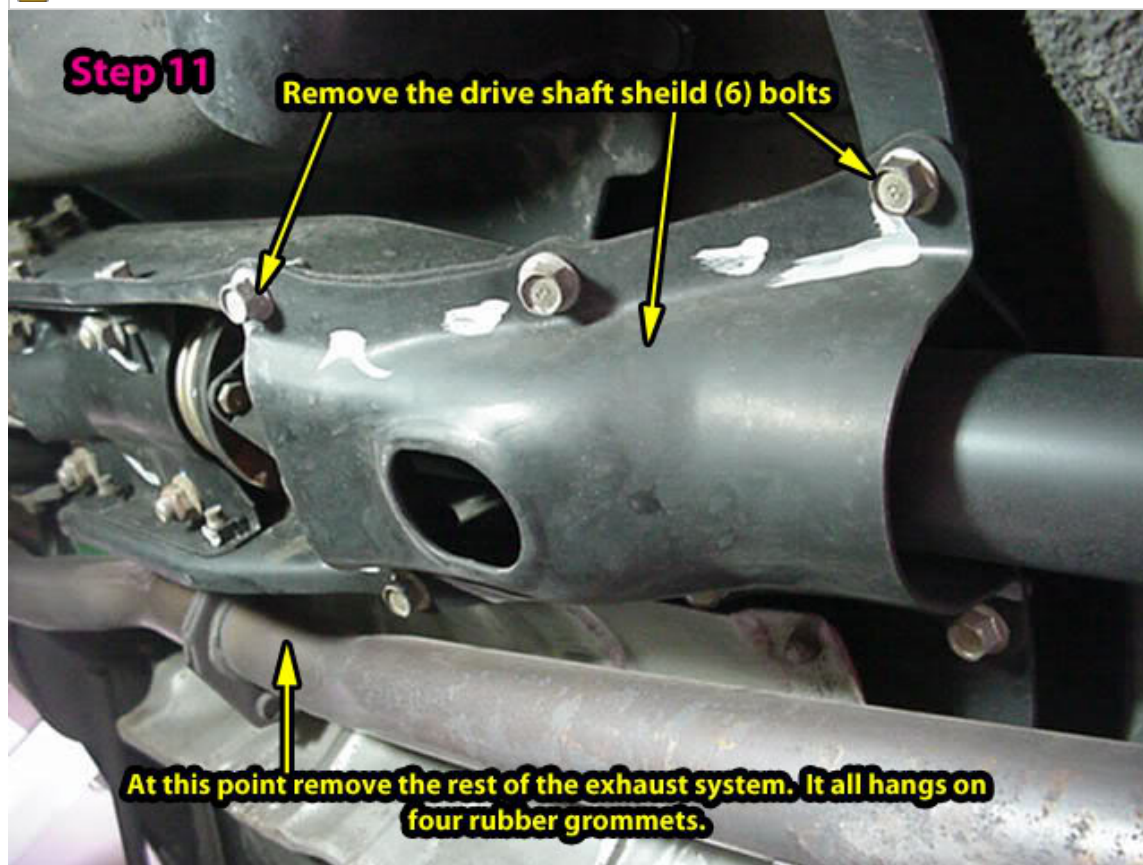


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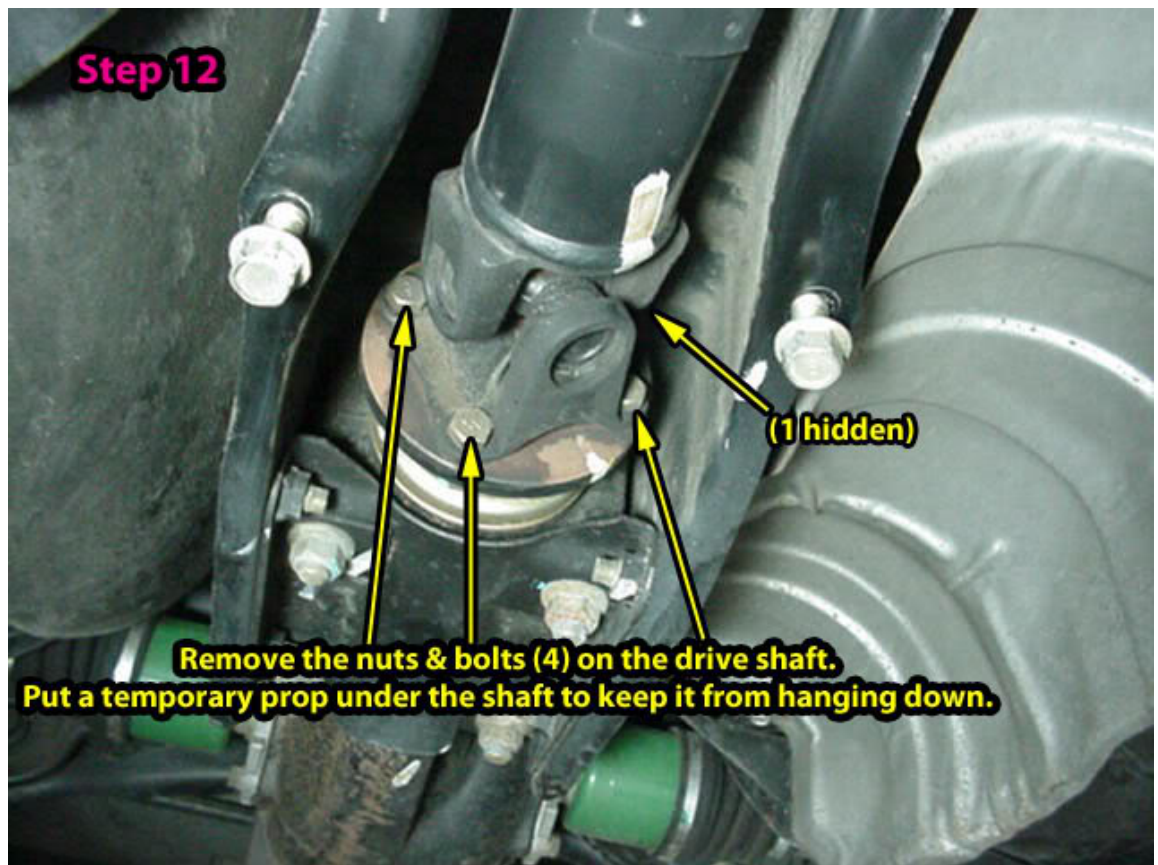


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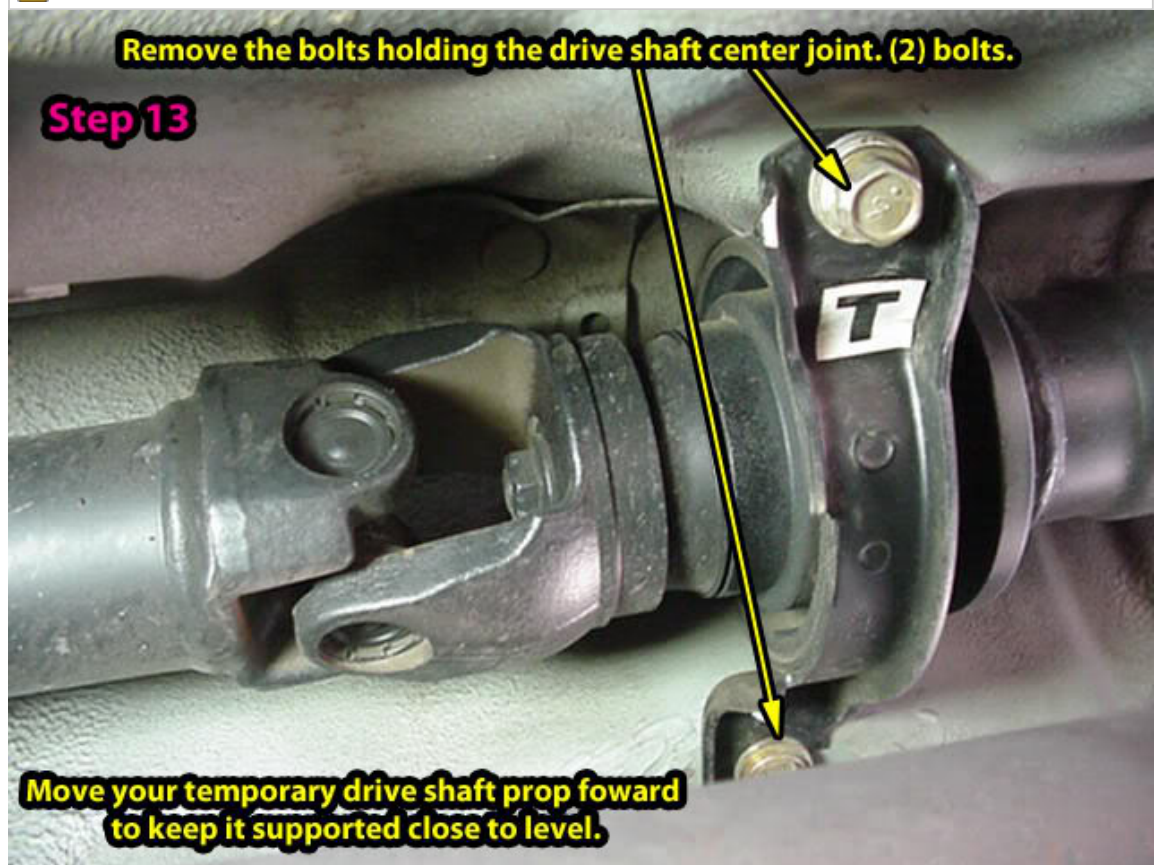


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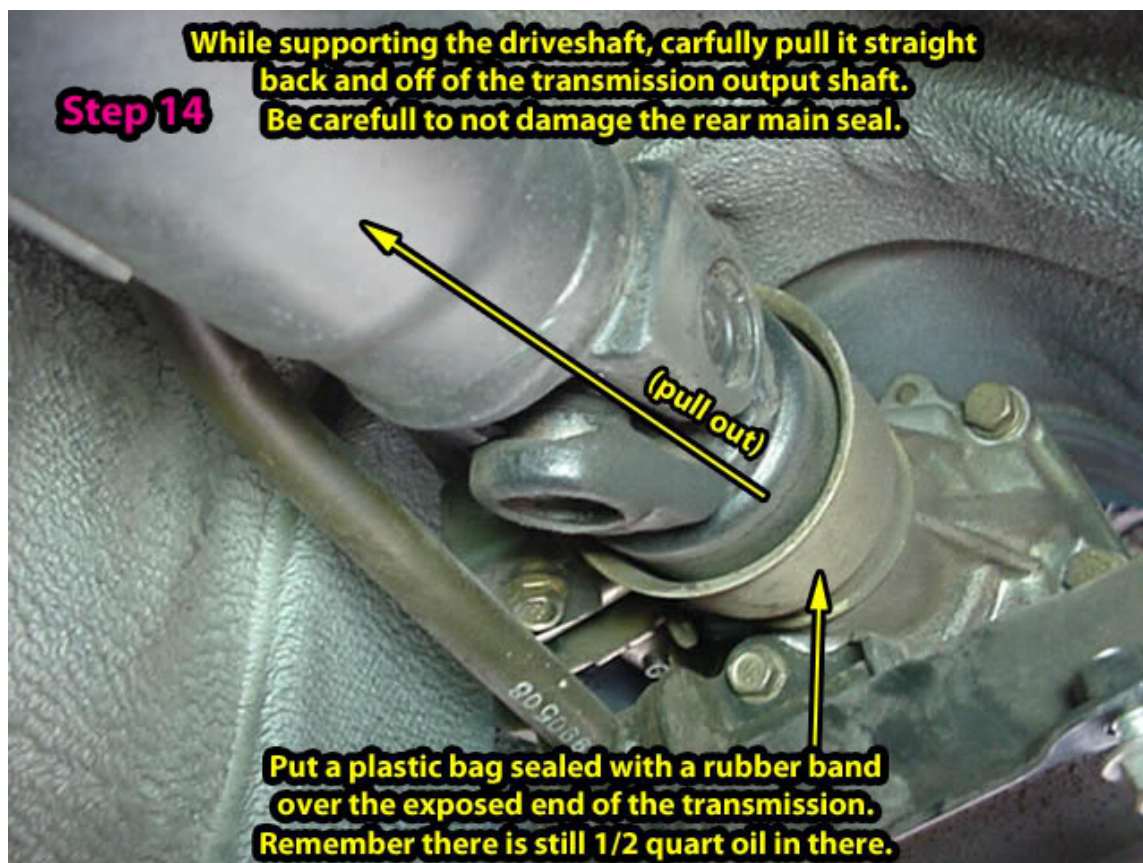


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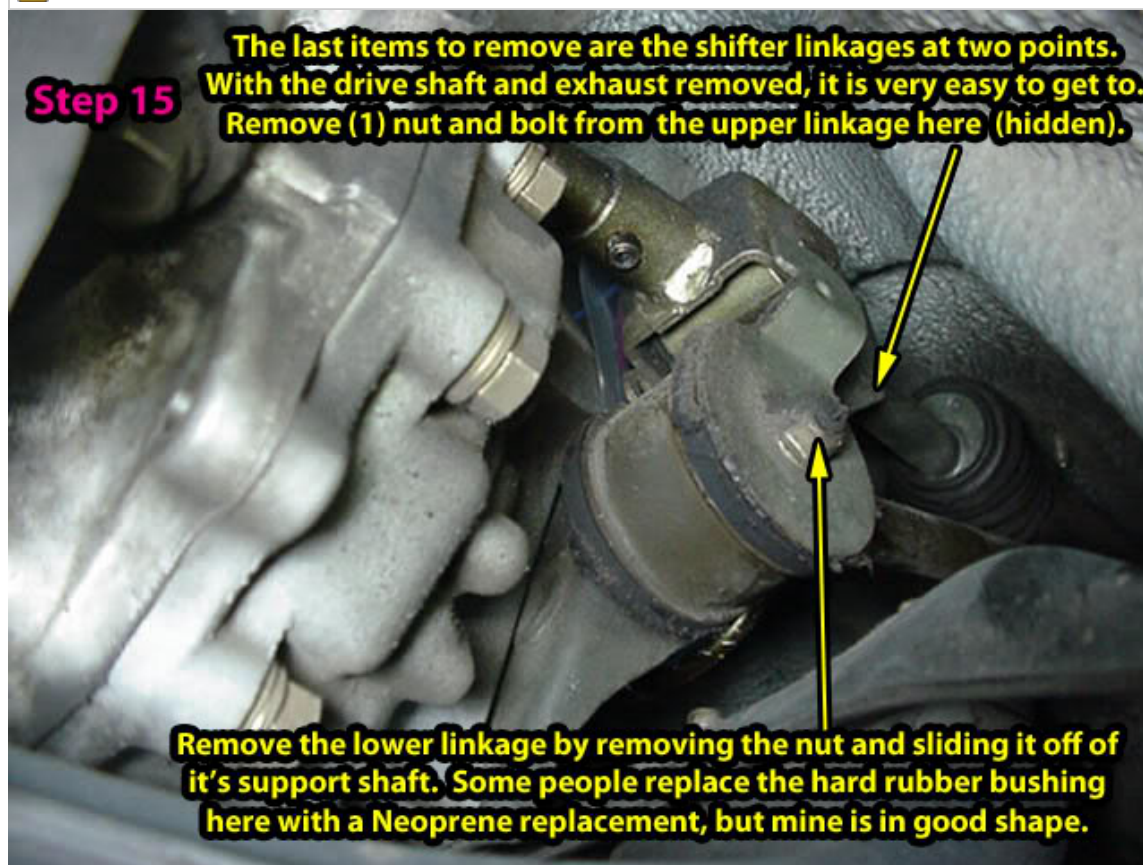


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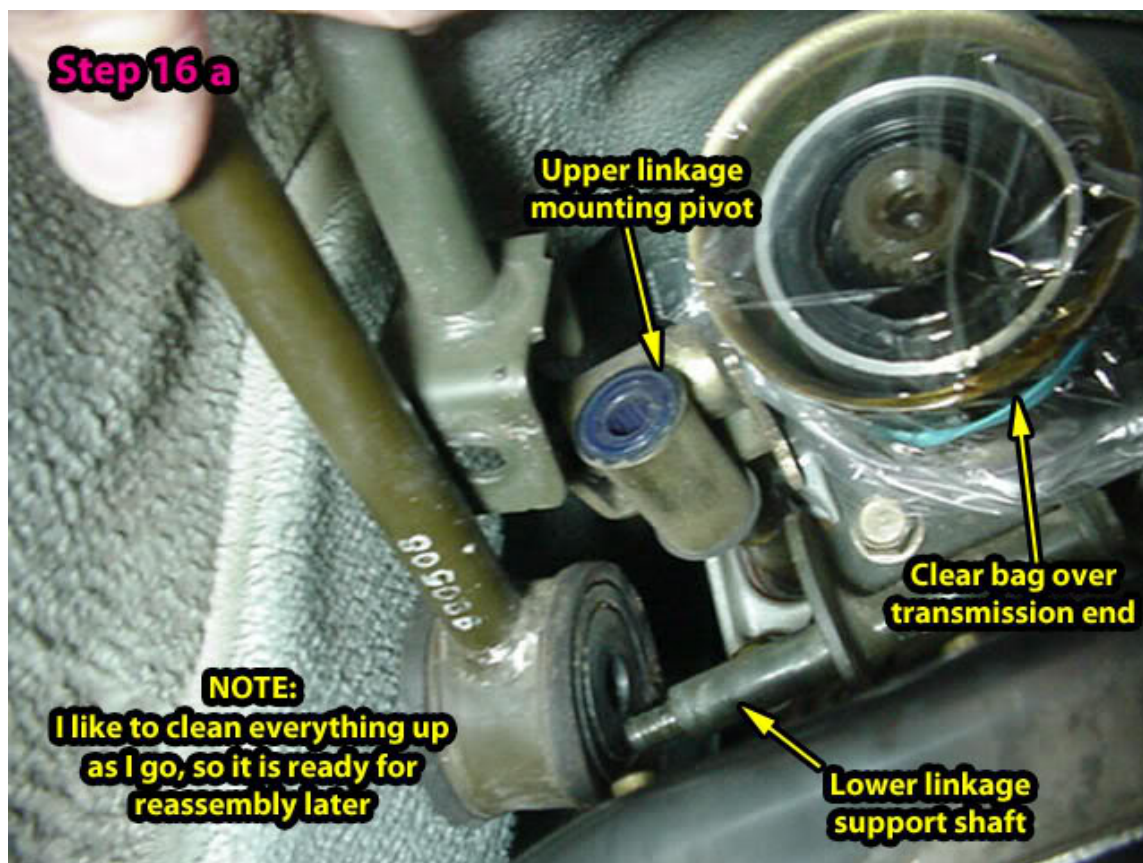


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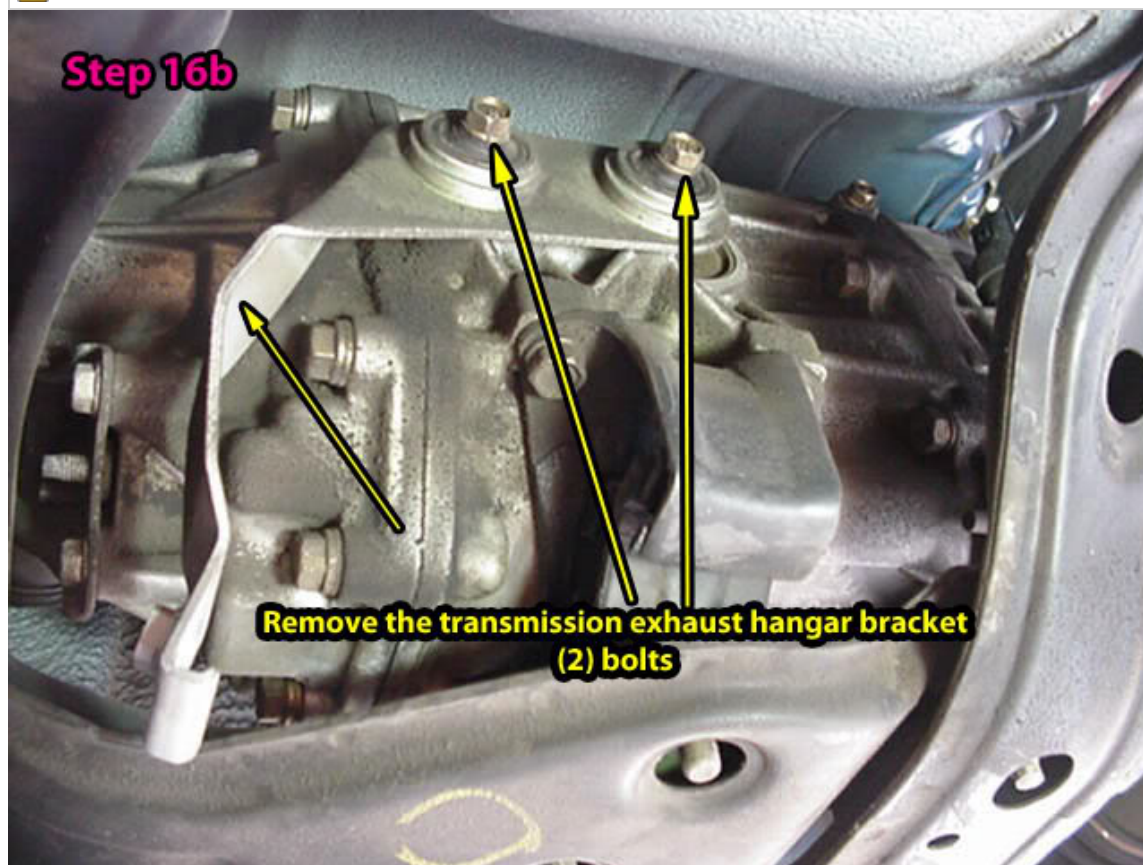


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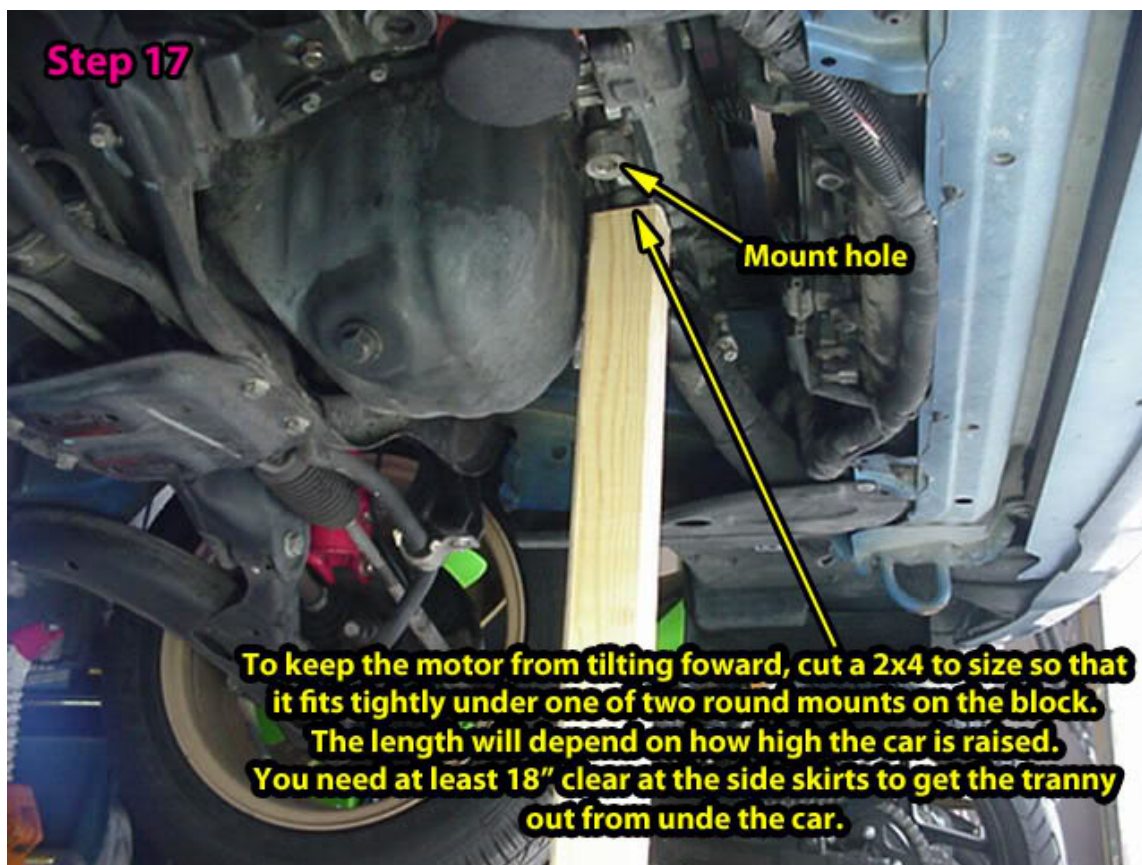


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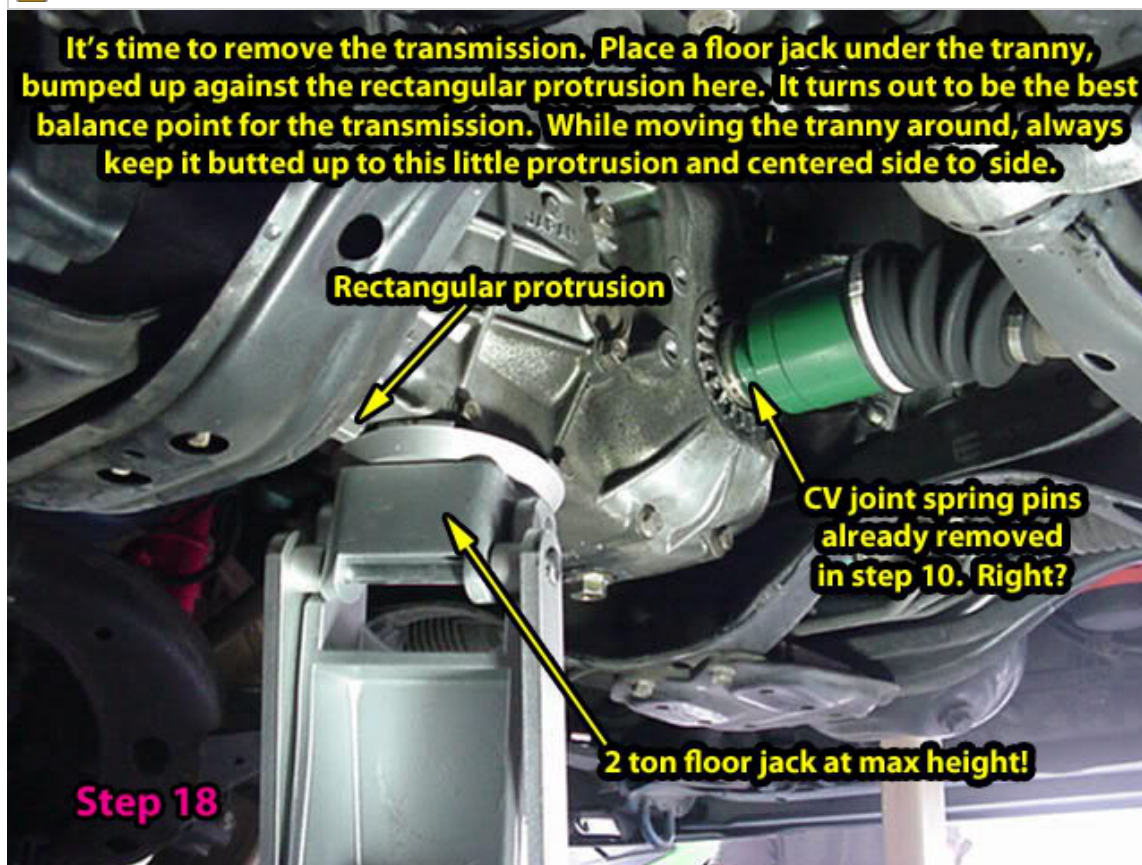


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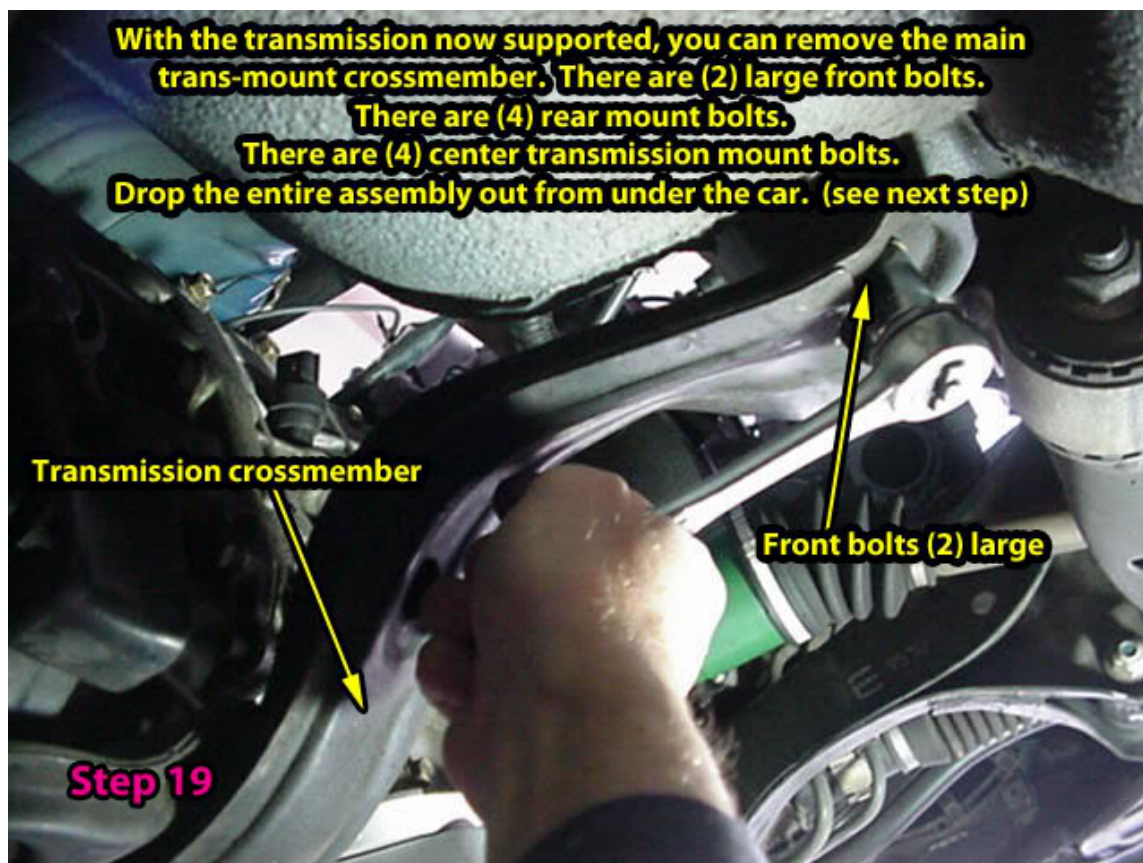


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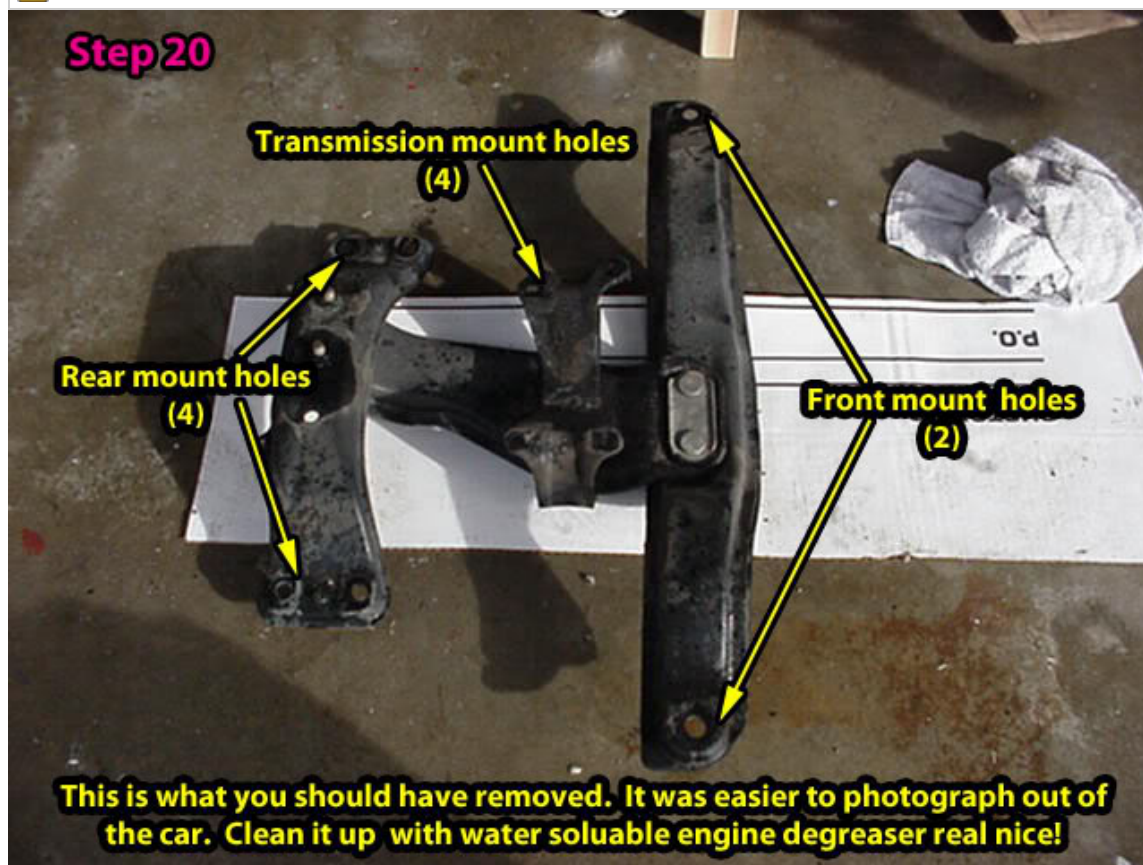


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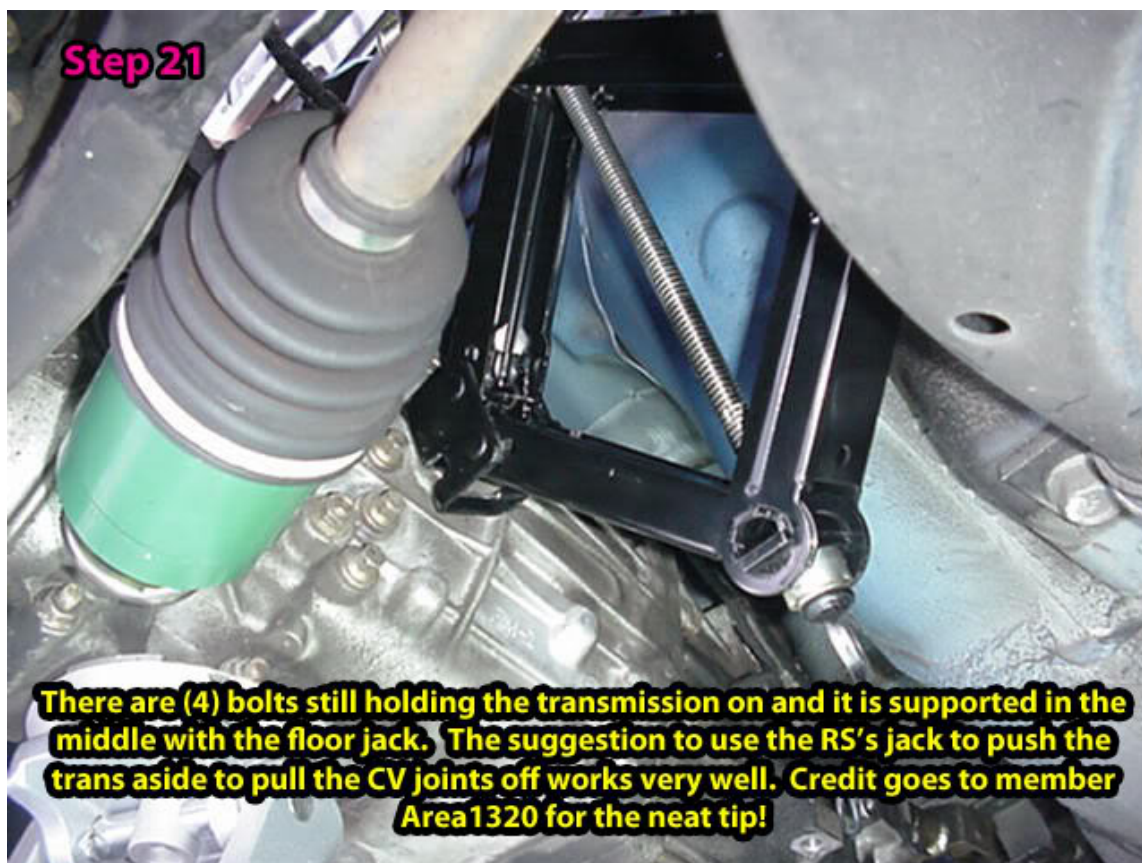


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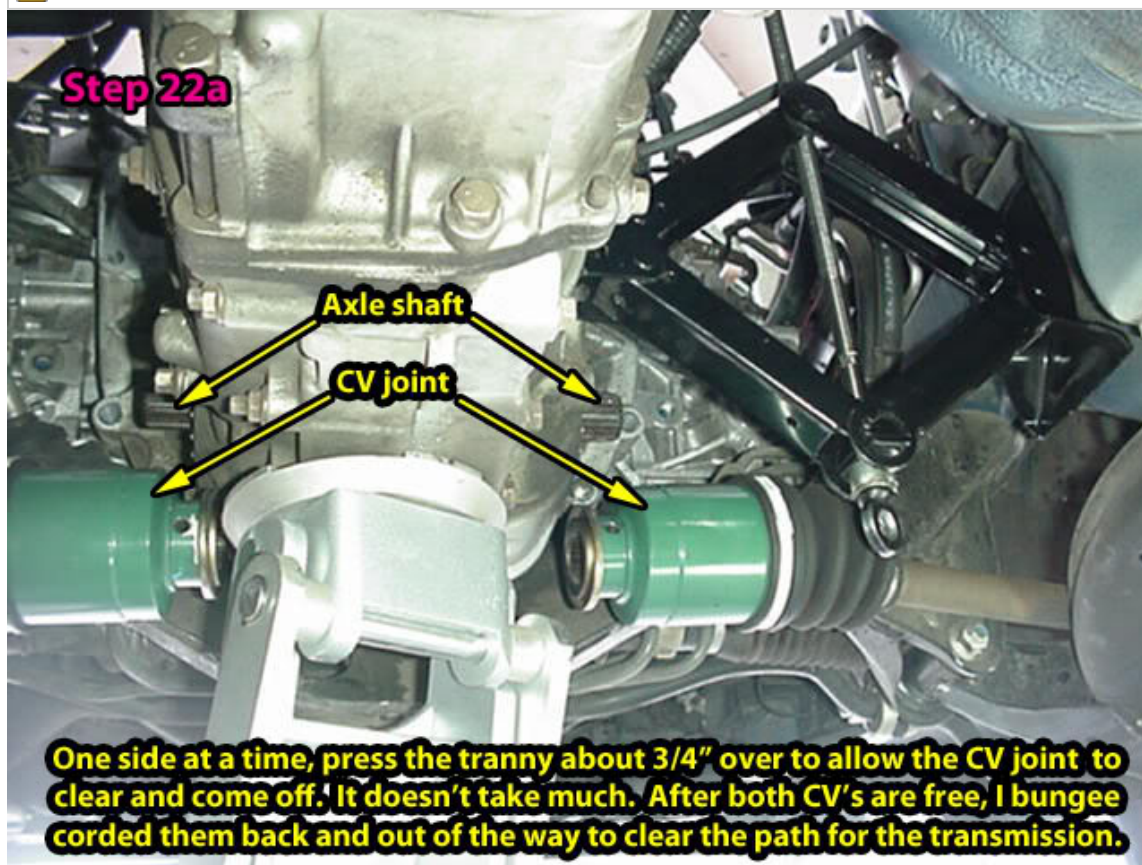


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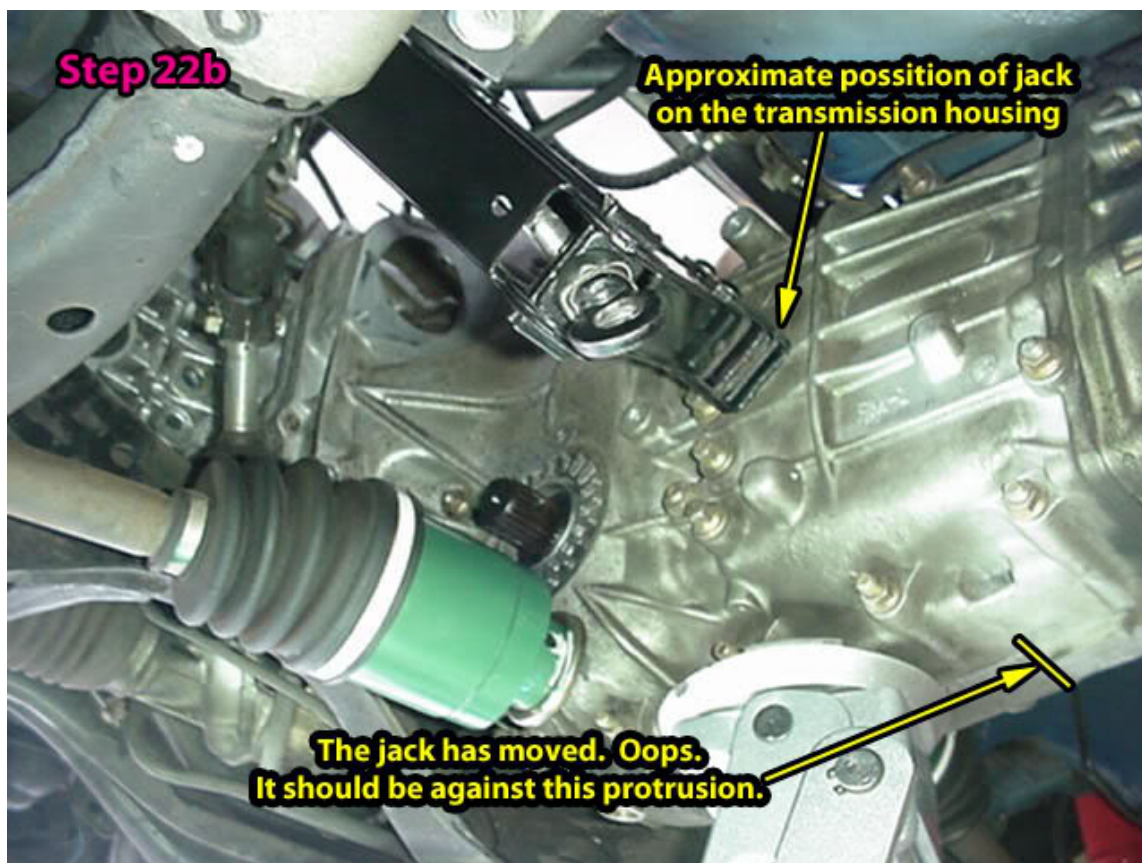


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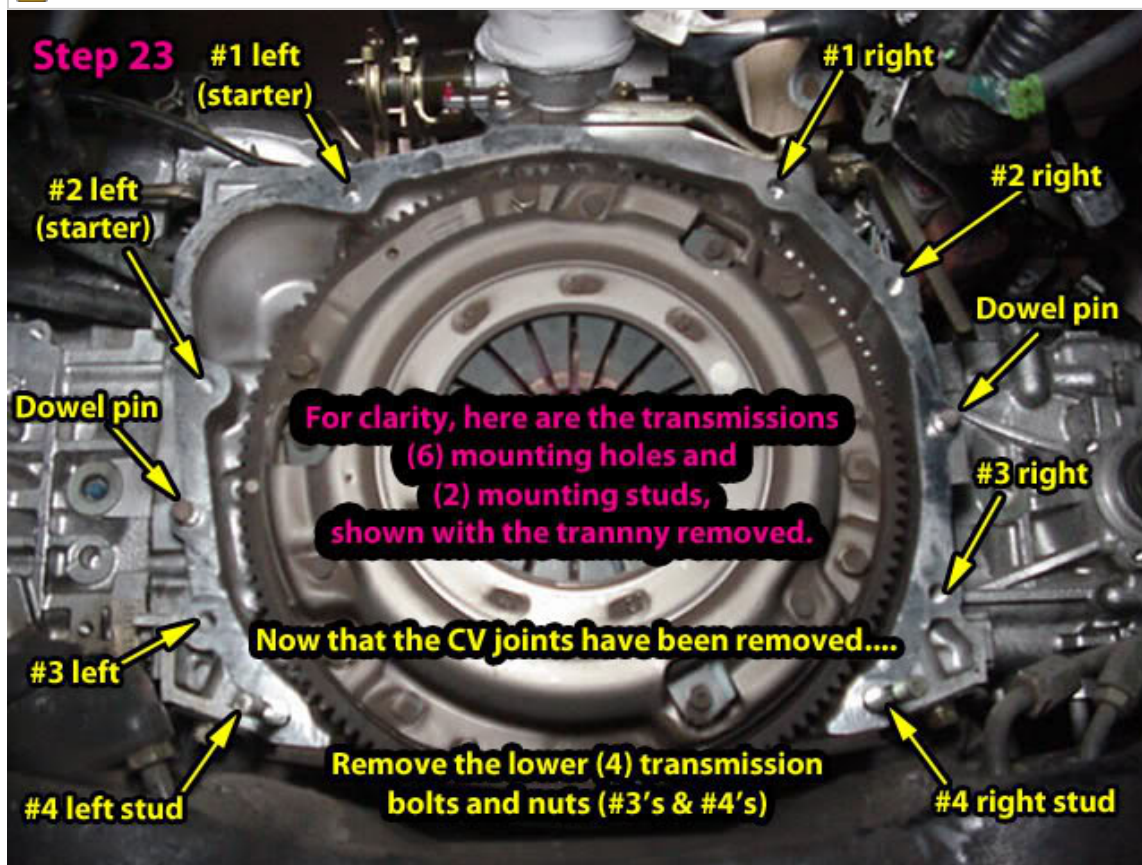


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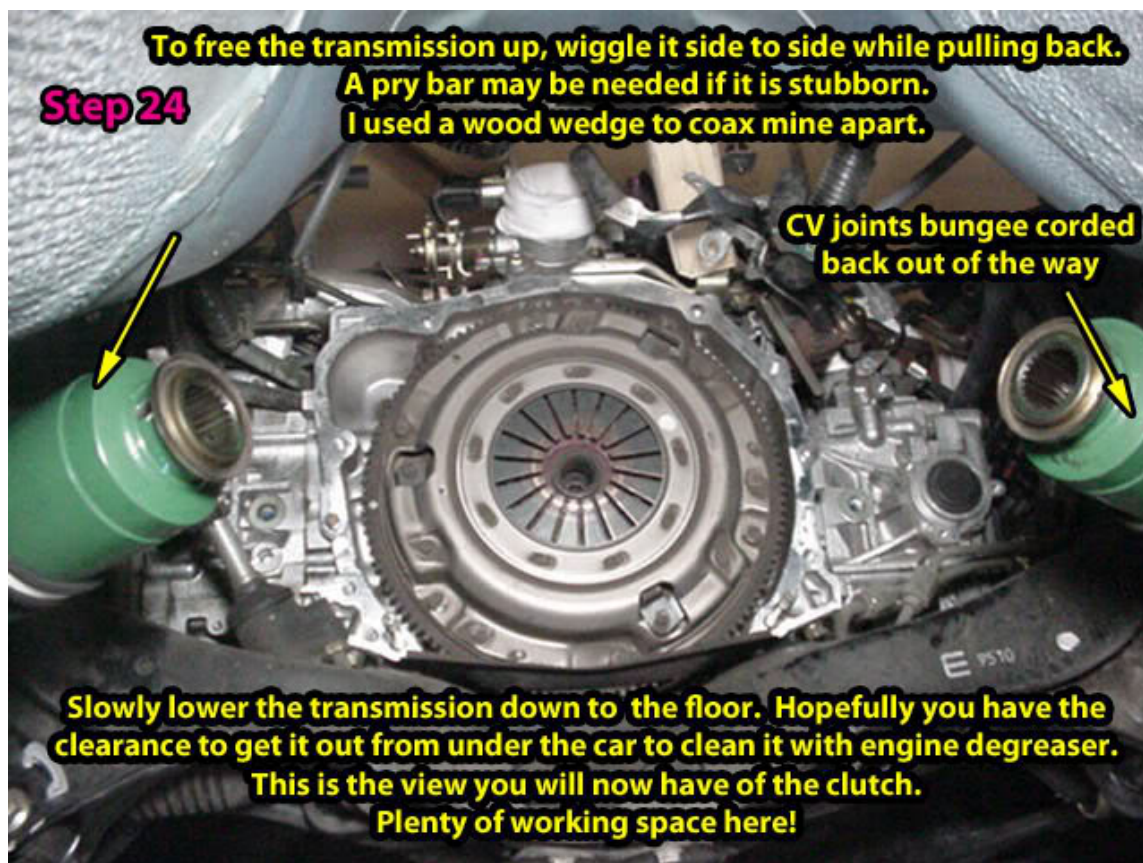


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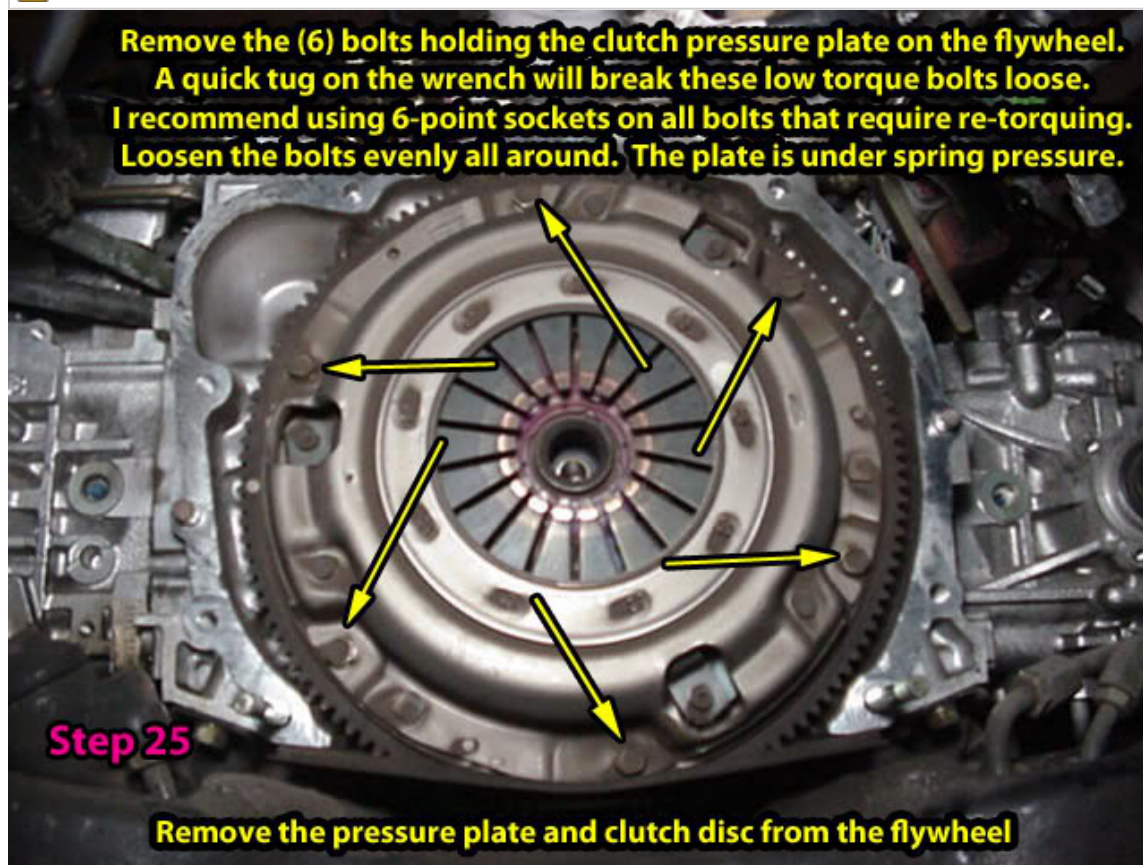


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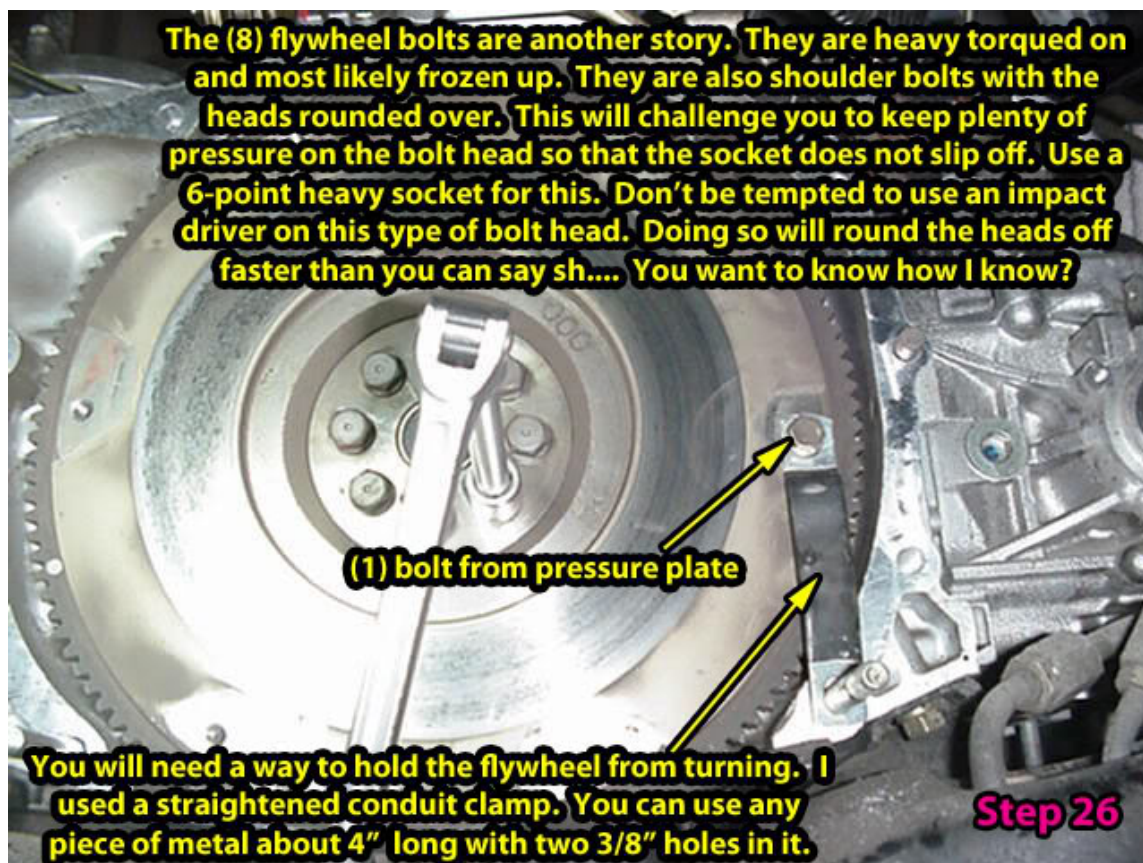


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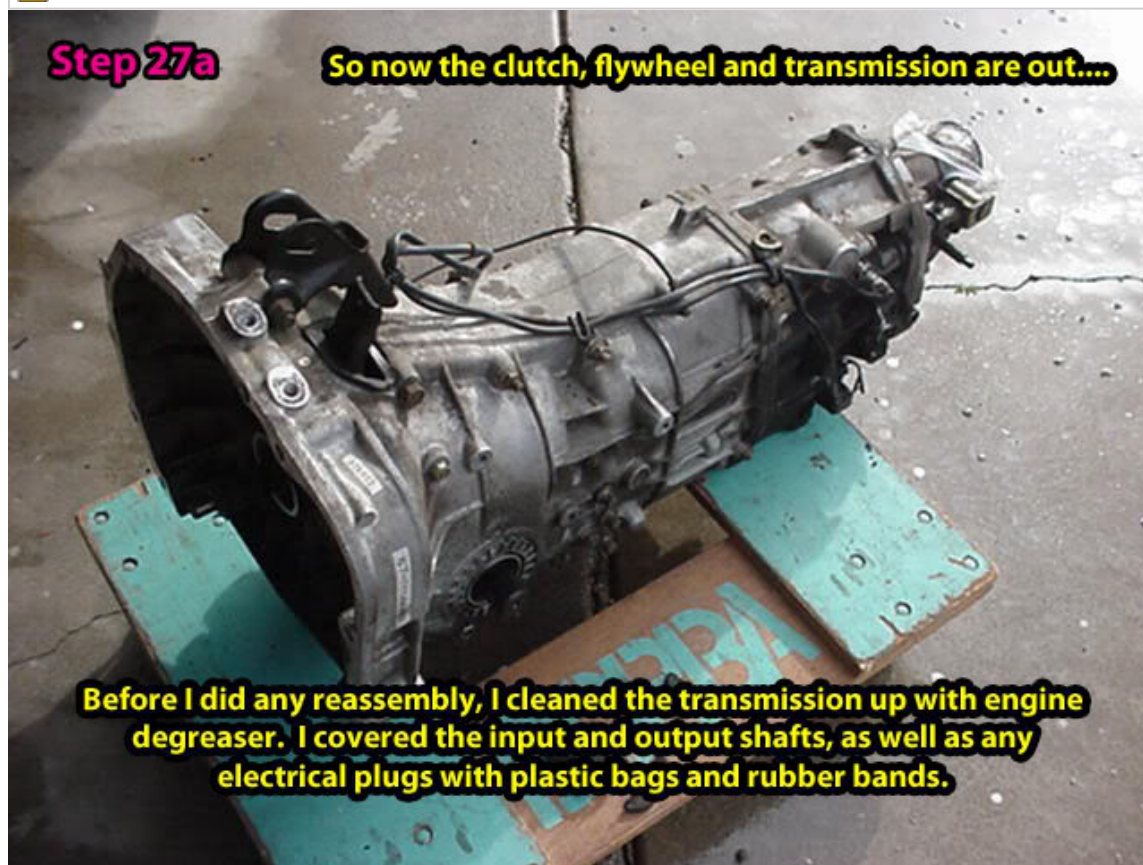


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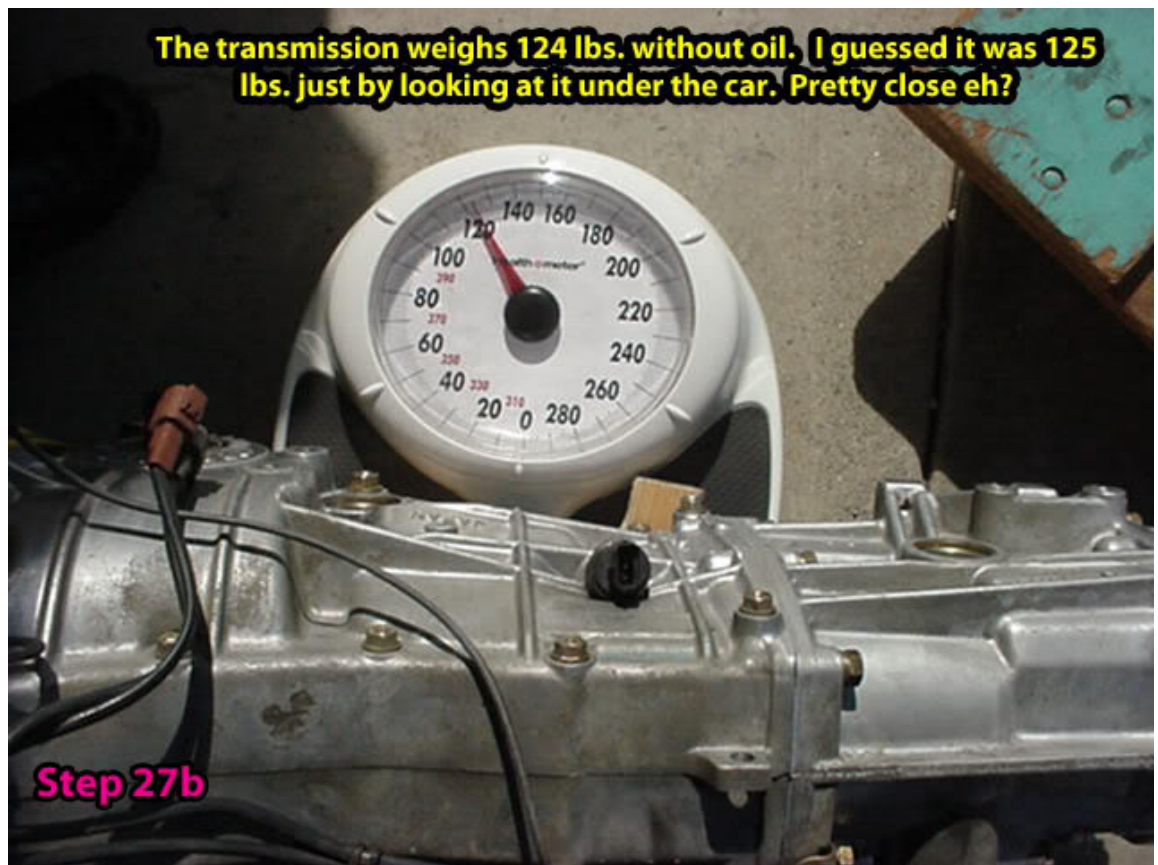


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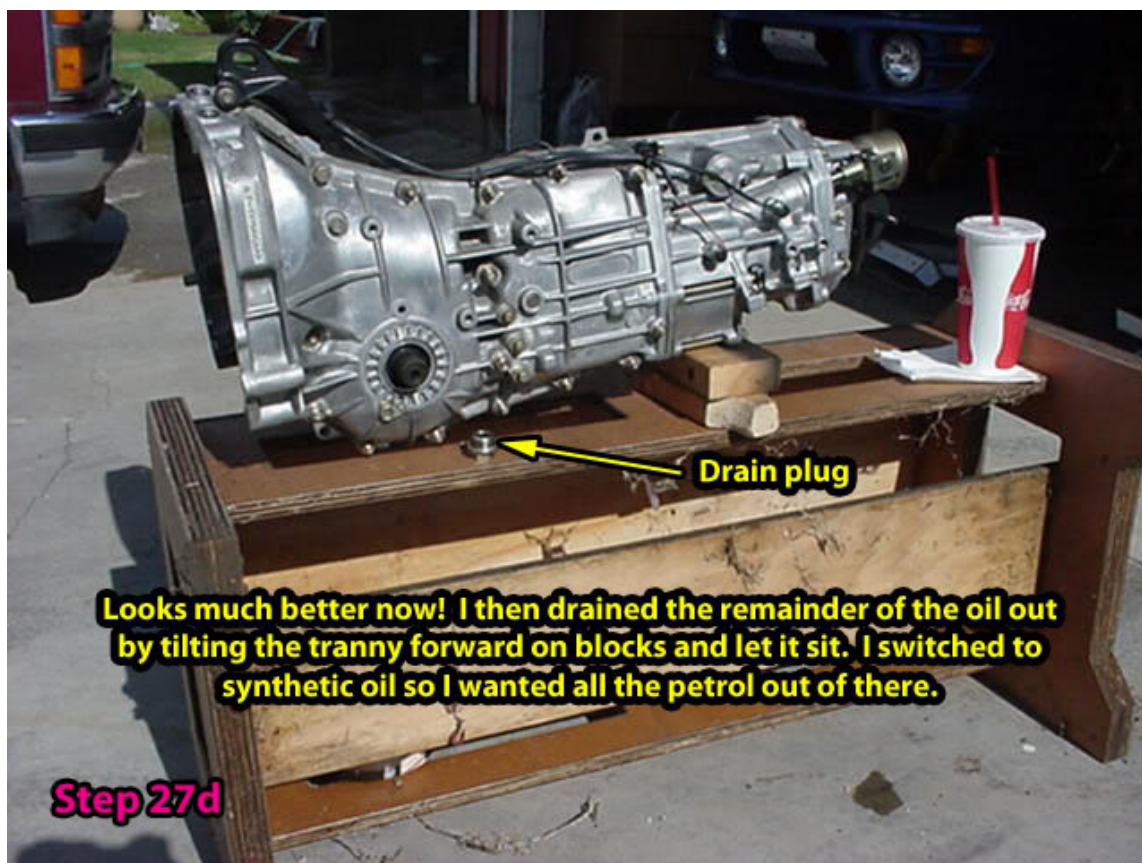


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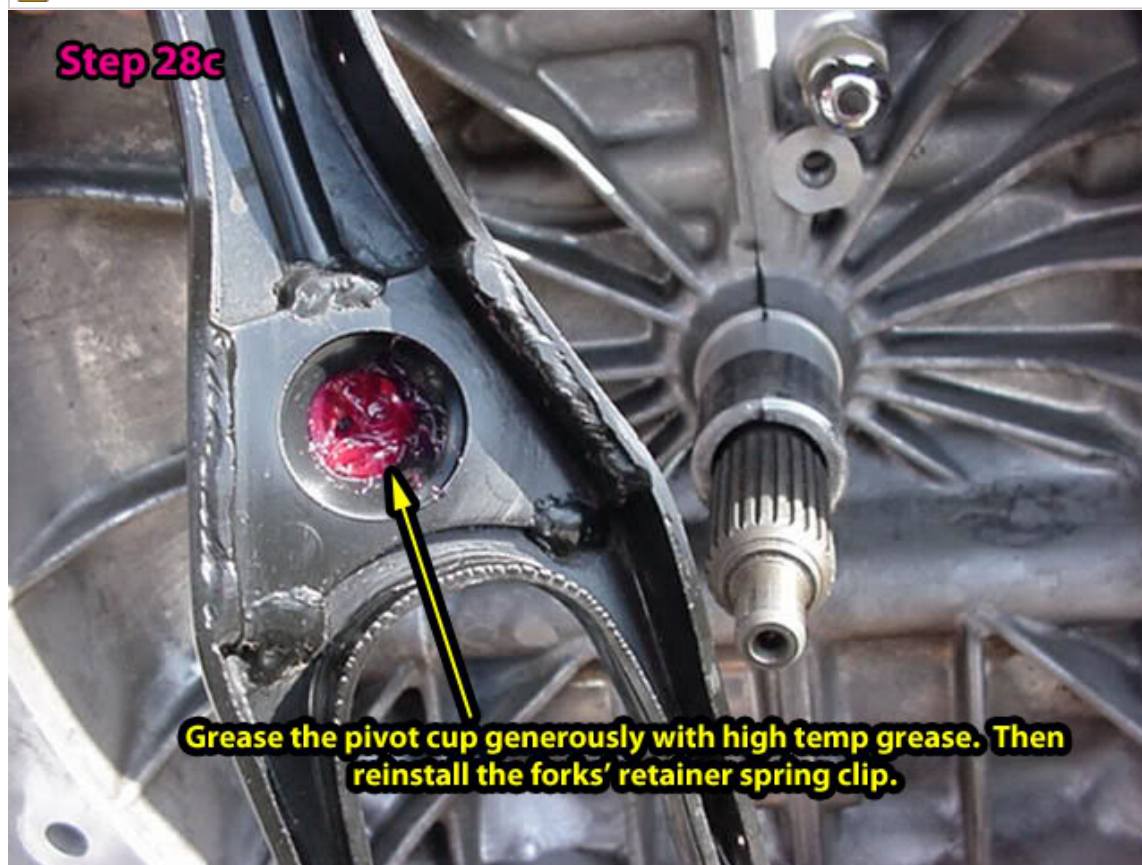


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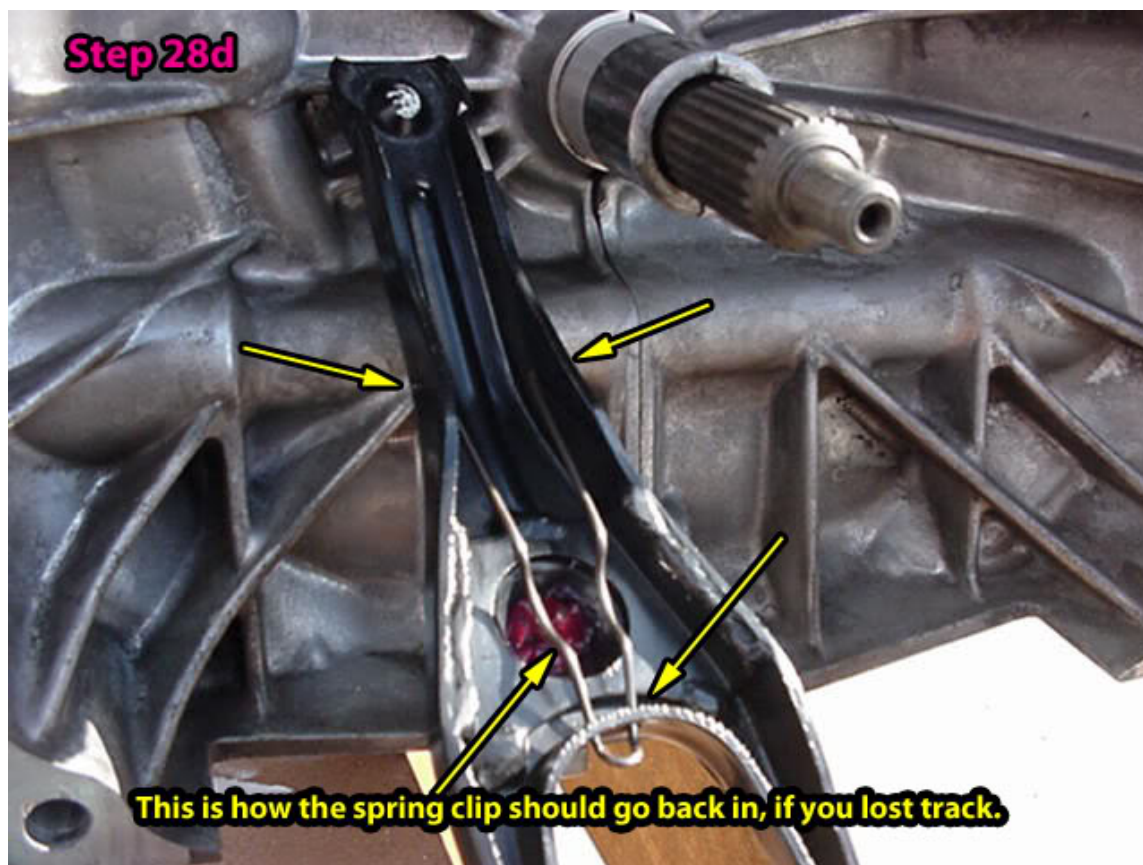


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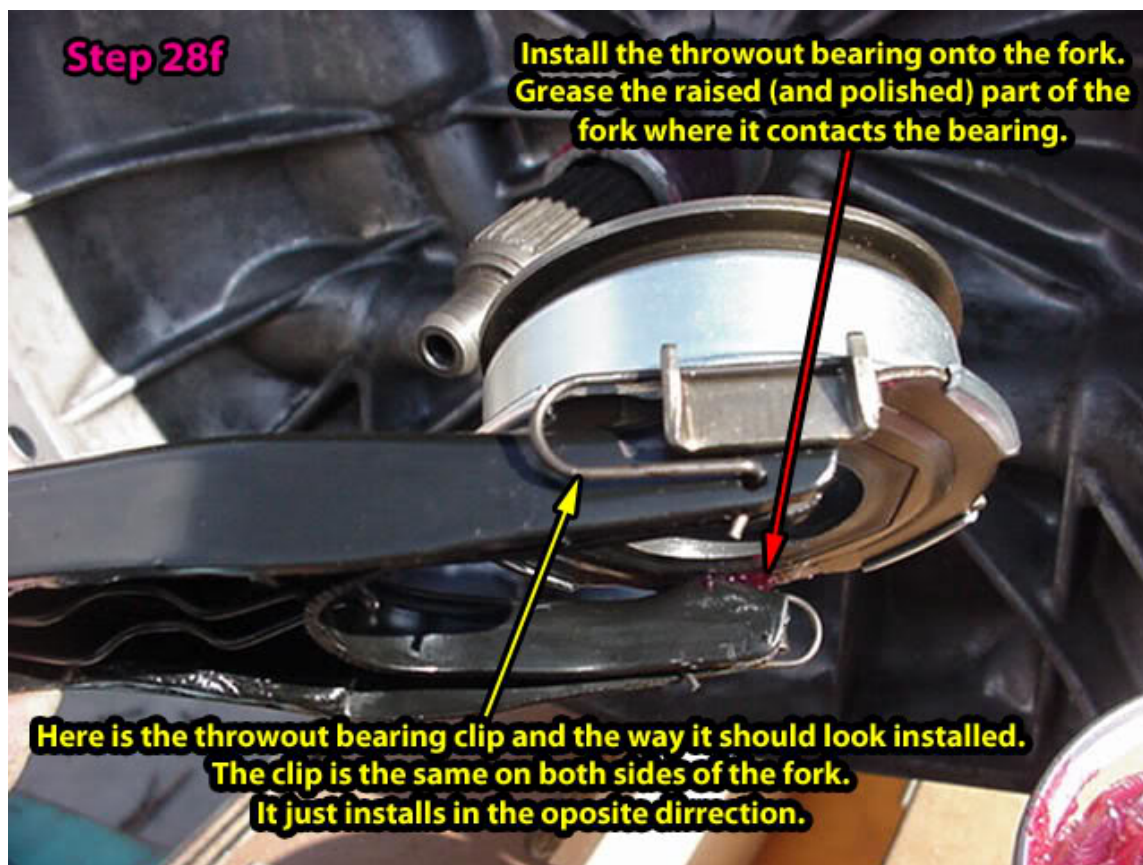


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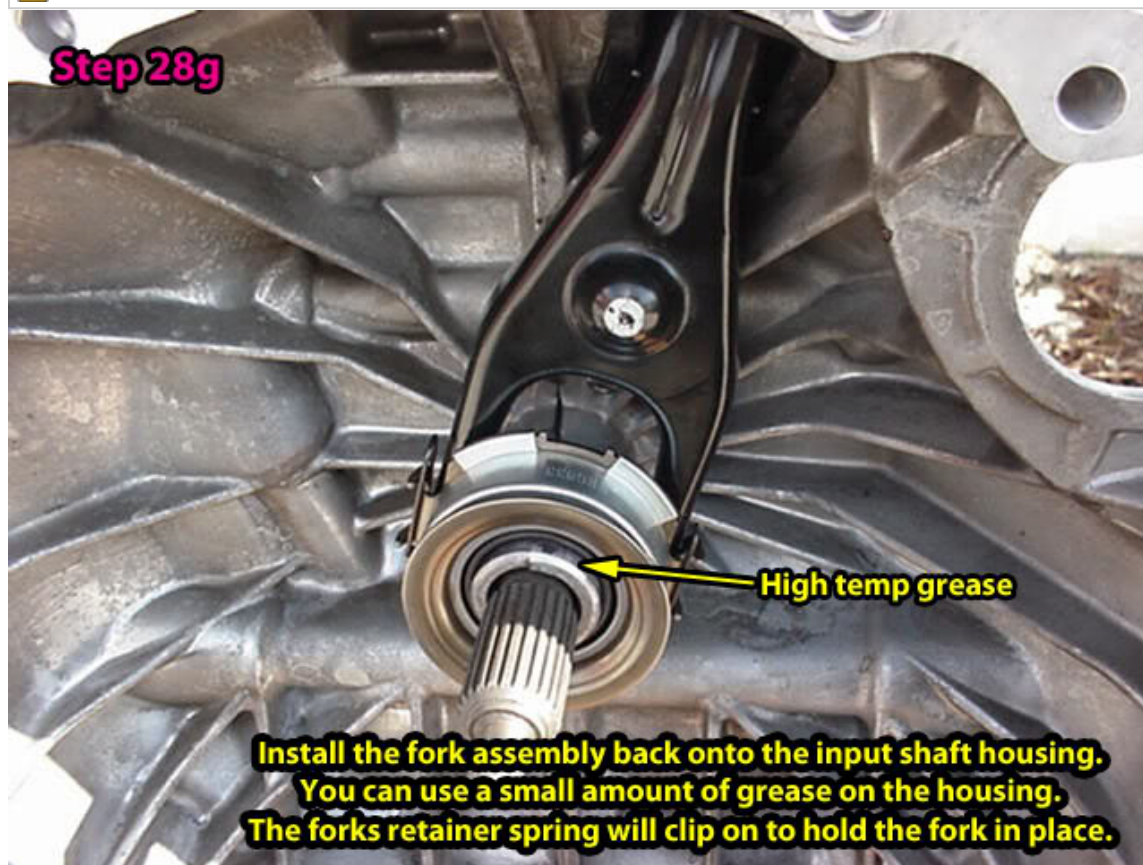


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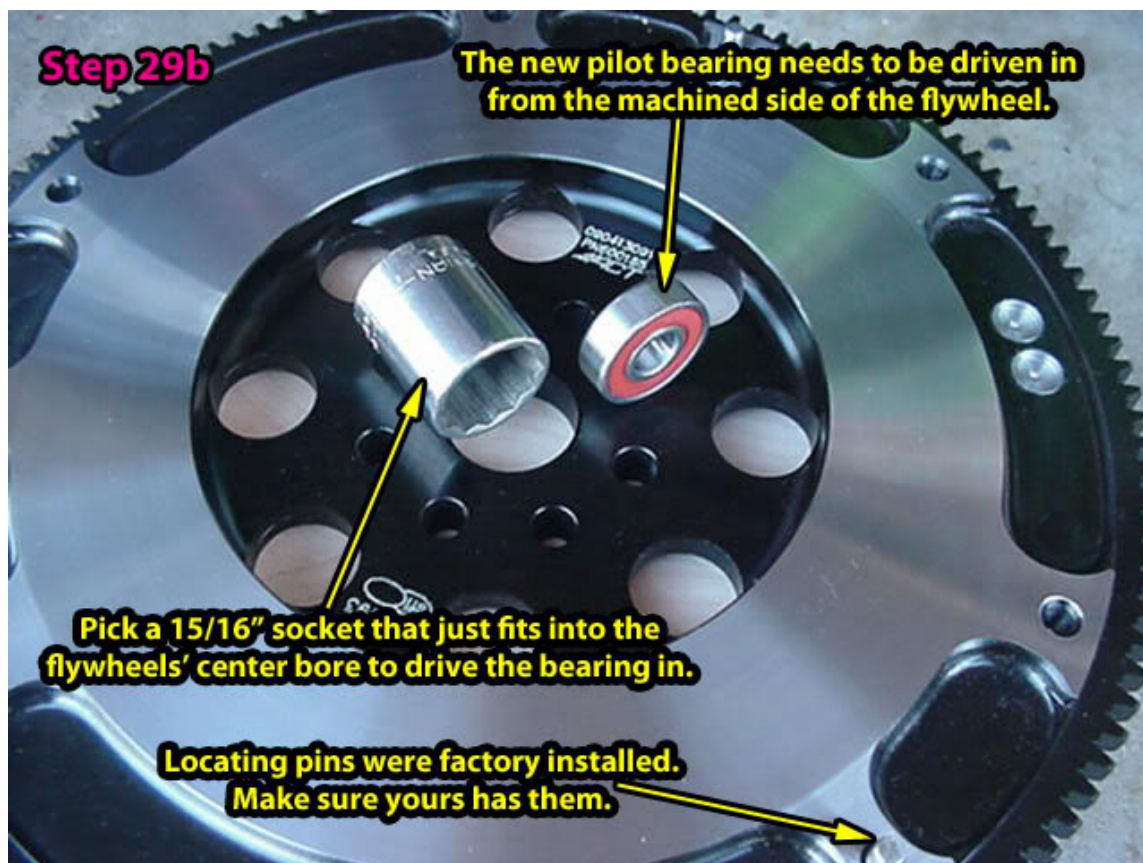


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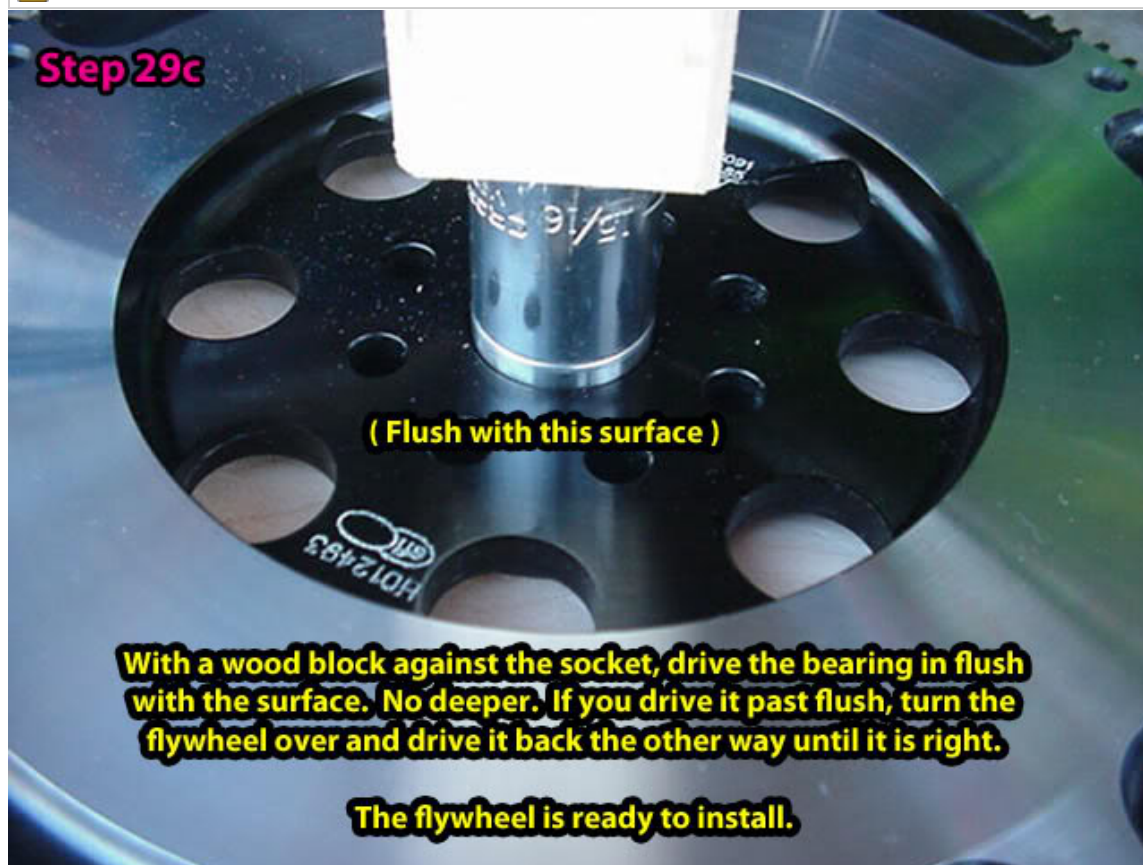


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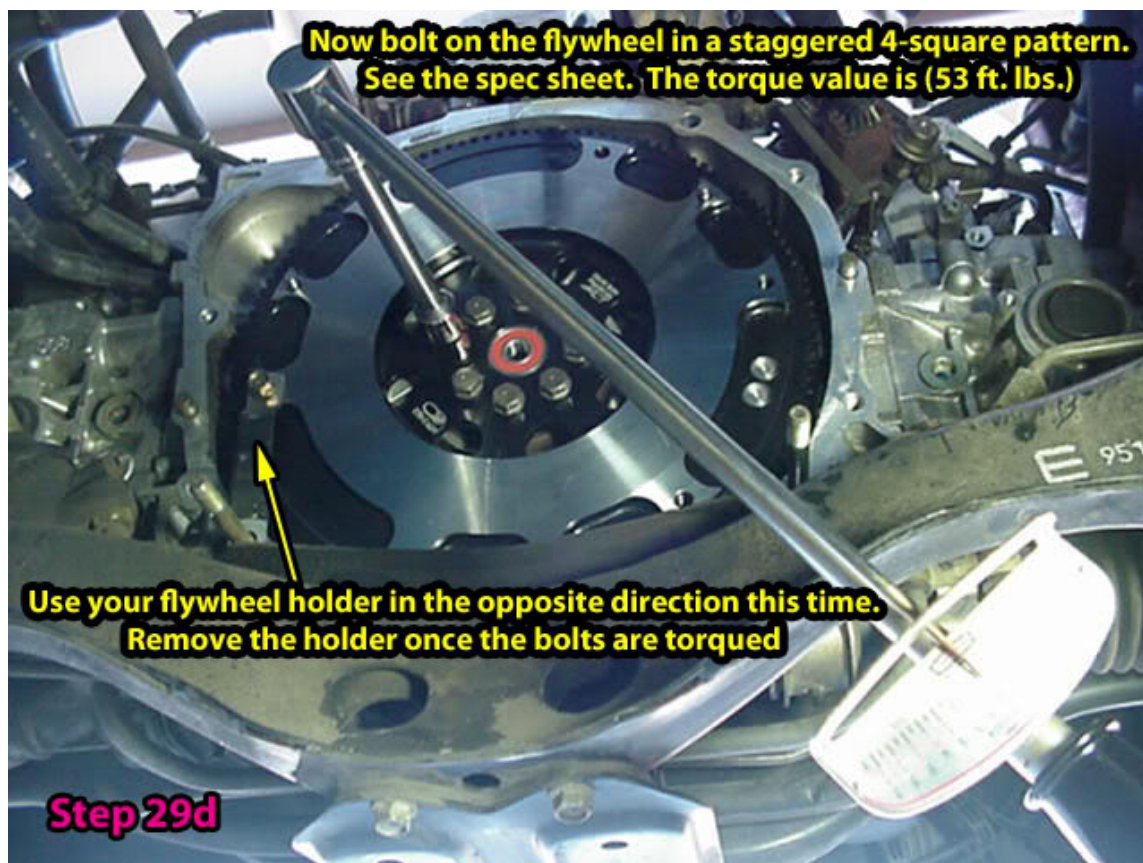


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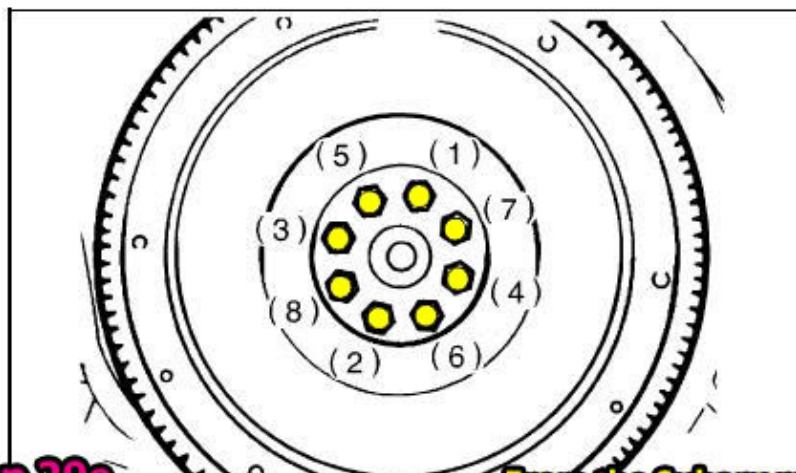




**Tighten the flywheel bolts gradually. Each bolt should be tightened to the specified torque in a criss-cross pattern.**

*Tightening torque:*

*$72 \pm 3 \text{ N}\cdot\text{m}$  ( $7.3 \pm 0.3 \text{ kg}\cdot\text{m}$ ,  $52.8 \pm 2.2 \text{ ft}\cdot\text{lb}$ )*



**Step 29e**

**From the Subaru manual**



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**Step 30a**

**Now compare the clutch discs. My new Daikin (GReddy) part is the same as the OEM disk. Hopefully this one is not defective!**



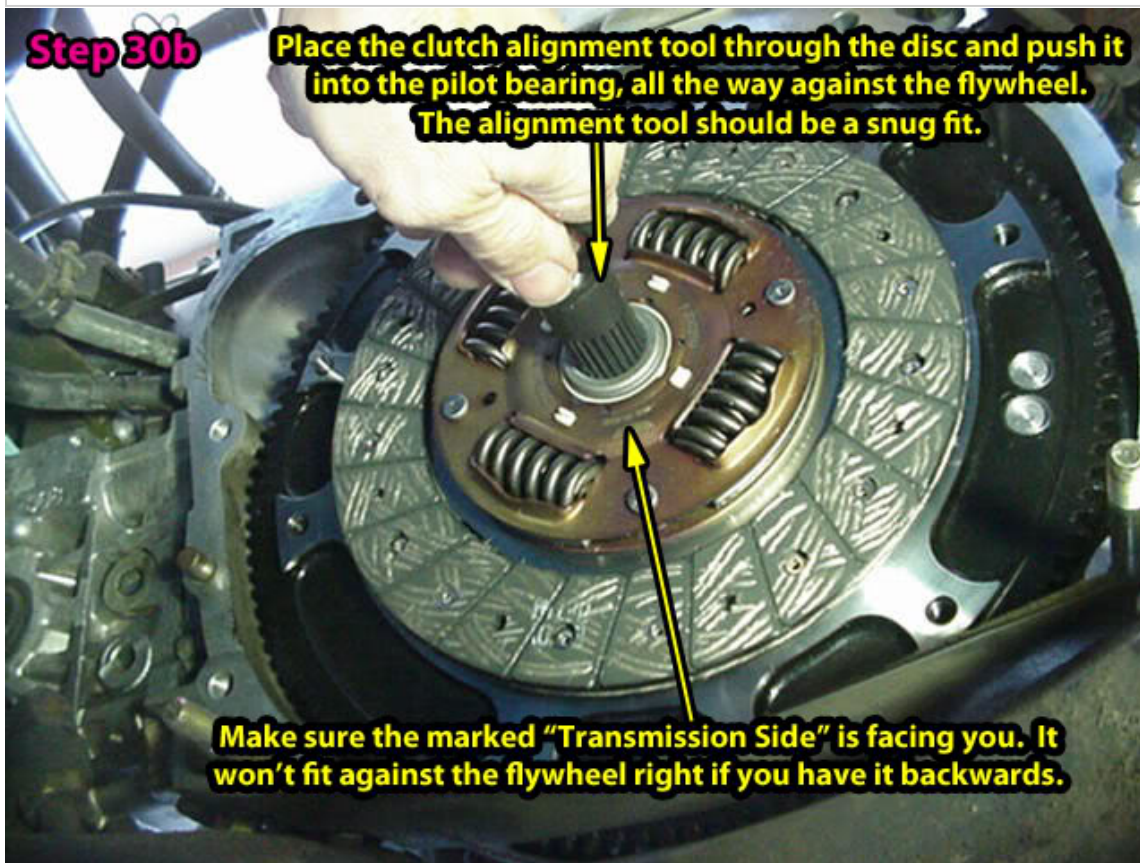
**Your chosen new part may differ....**



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**Step 30b**

**Place the clutch alignment tool through the disc and push it into the pilot bearing, all the way against the flywheel. The alignment tool should be a snug fit.**



**Make sure the marked "Transmission Side" is facing you. It won't fit against the flywheel right if you have it backwards.**



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**Step 31a**

**Compare your pressure plates, old to new. Hole pattern and pin locator holes should be the same. If you are upgrading, your plate will look slightly different.**



**Once again, the new Daikin part is the same as the OEM plate....**



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**Install the pressure plate onto the flywheel, making sure you fit over the (2) alignment pins. Start all (6) of the bolts into the flywheel while keeping the center pilot tool pressed firmly into the disc....**

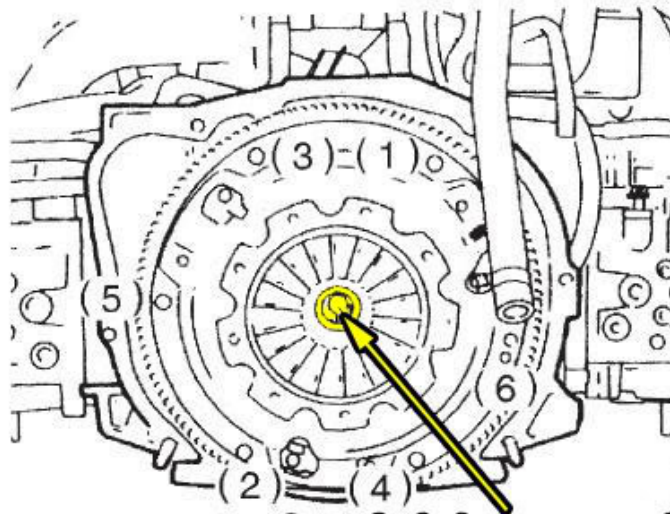
**Step 31b**

**Tighten the bolts evenly a little at a time, in the cross pattern. Torque value is an easy (11.6 ft. lbs.)**



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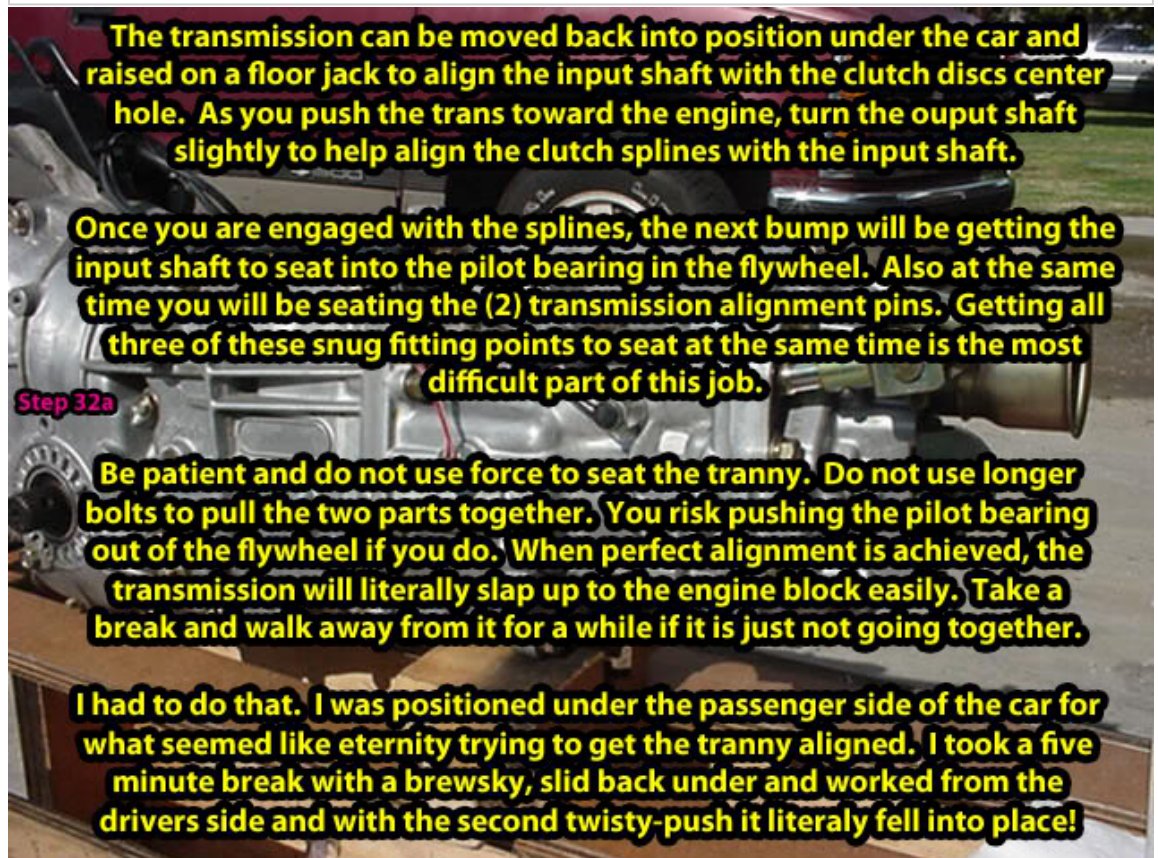
**Step 31c****From the Subaru Manual**

**Once the bolts are torqued, remove the pilot alignment tool from the clutch**

**The clutch job is done and now the transmission can be installed...**



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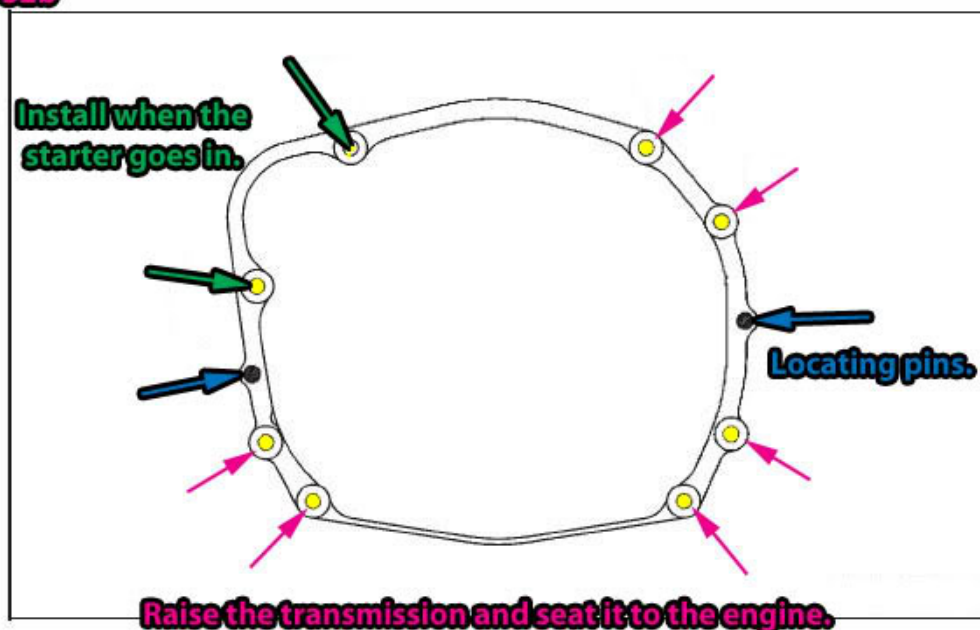


**Tightening torque:**

**From the Subaru Manual**

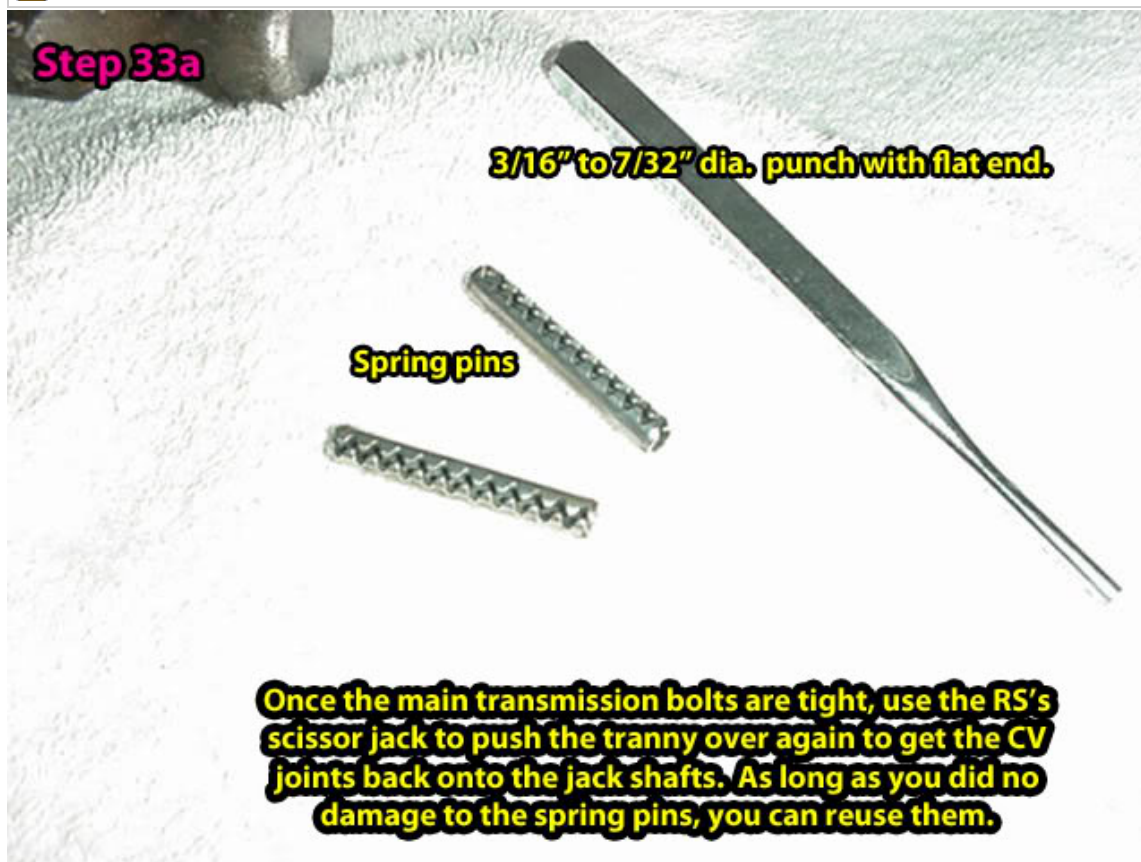
**$50 \pm 4 \text{ N}\cdot\text{m}$  ( $5.1 \pm 0.4 \text{ kg}\cdot\text{m}$ ,  $36.9 \pm 2.9 \text{ ft}\cdot\text{lb}$ )**

**Step 32b**



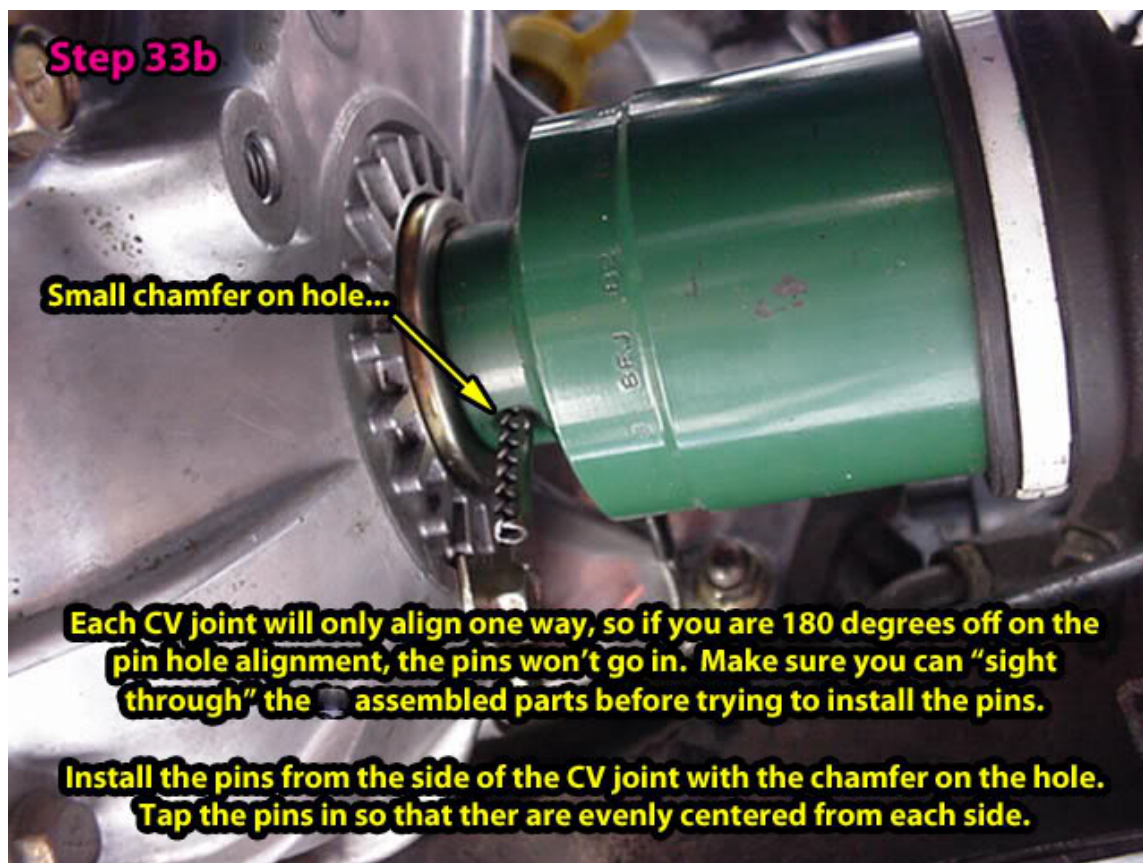
**Tighten the (4) bolts and (2) nuts at the transmission to the engine.  
Torque value: (36.9 ft. lbs.)**

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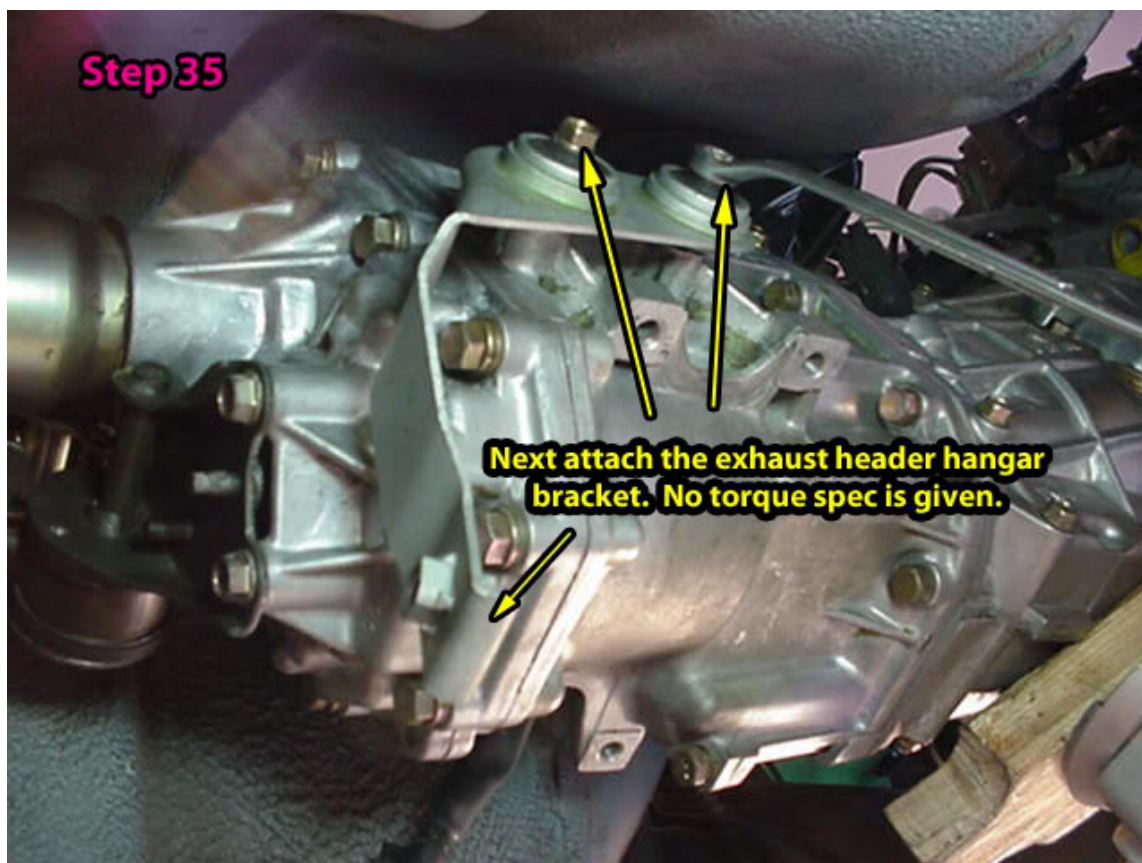


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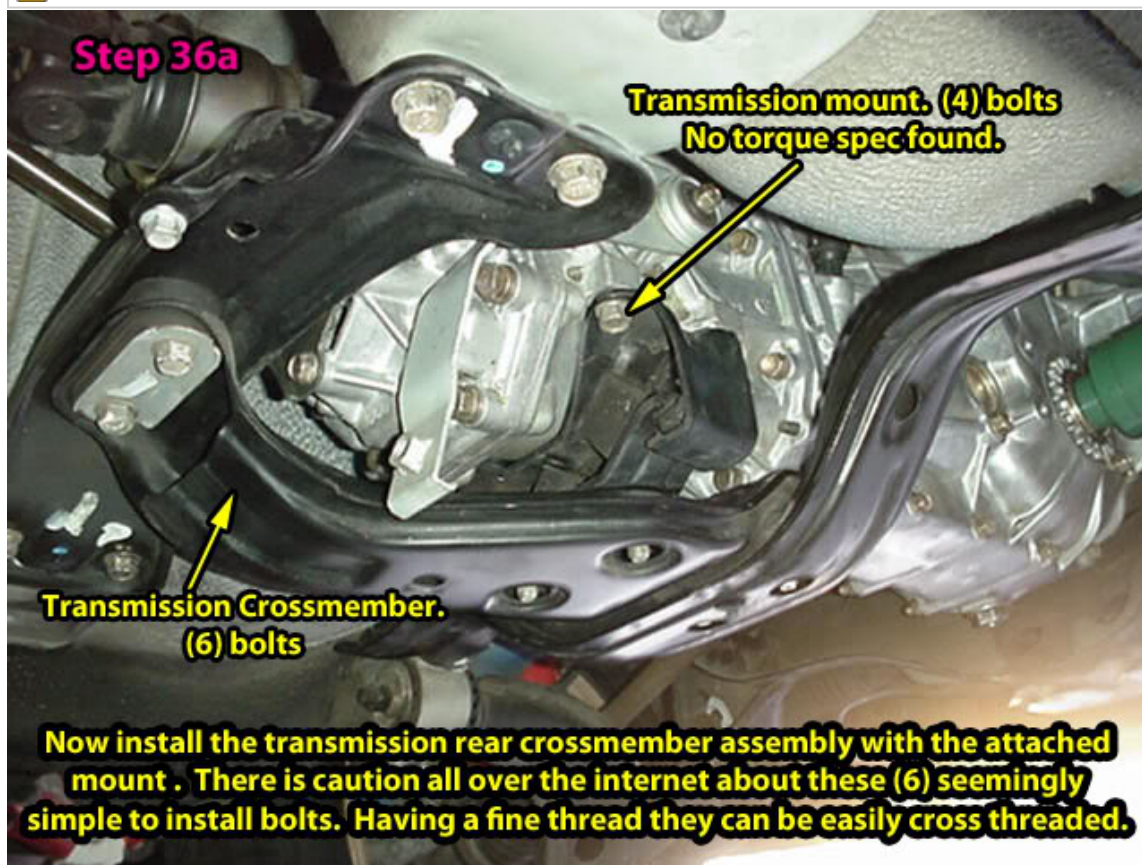


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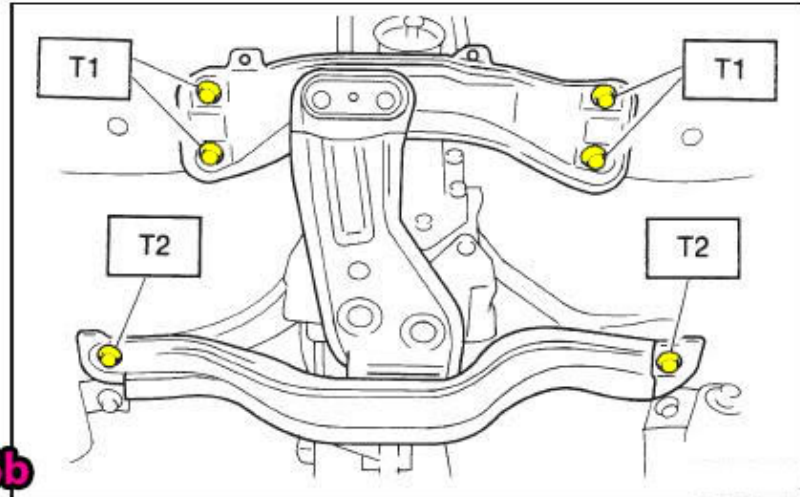
- MT vehicles

**From the Subaru manual**

**Tightening torque:**

**T1:  $69 \pm 15$  N·m ( $7.0 \pm 1.5$  kg-m,  $51 \pm 11$  ft-lb)**

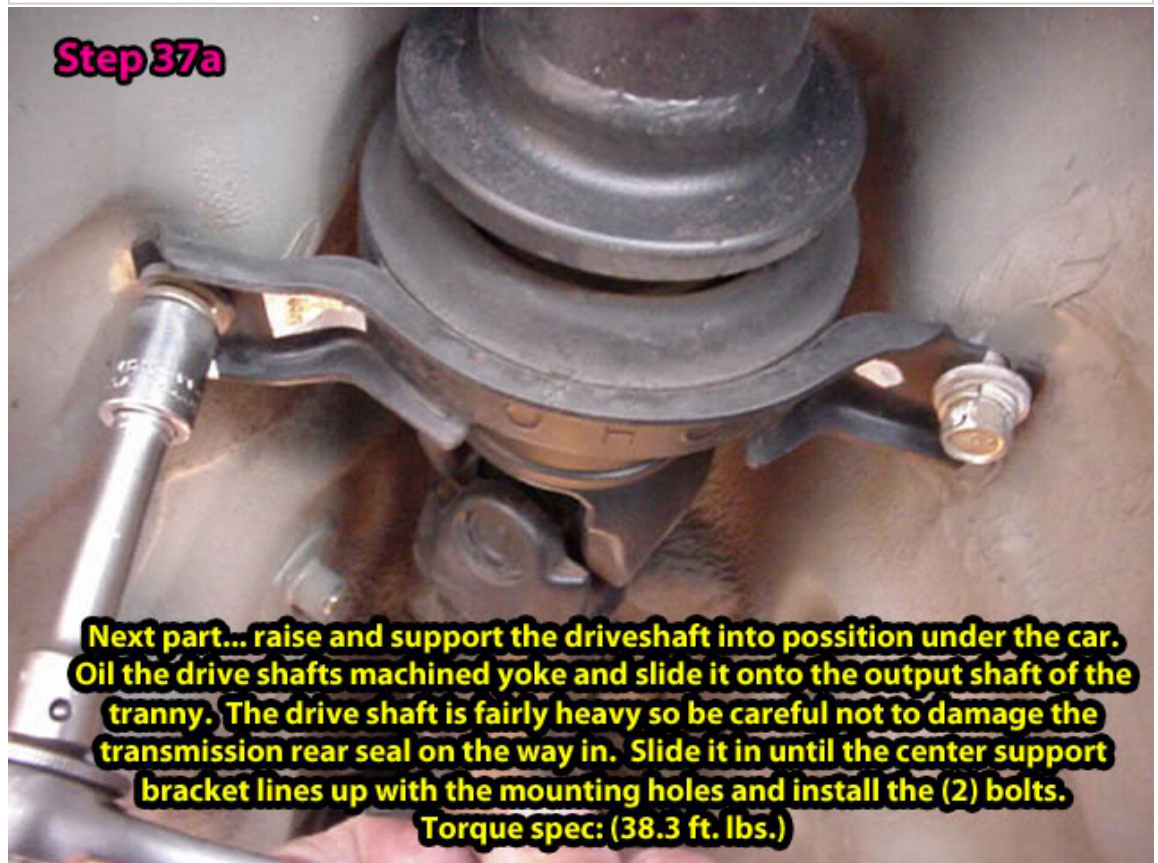
**T2:  $137 \pm 20$  N·m ( $14 \pm 2$  kg-m,  $101 \pm 14$  ft-lb)**




**Step 36b**

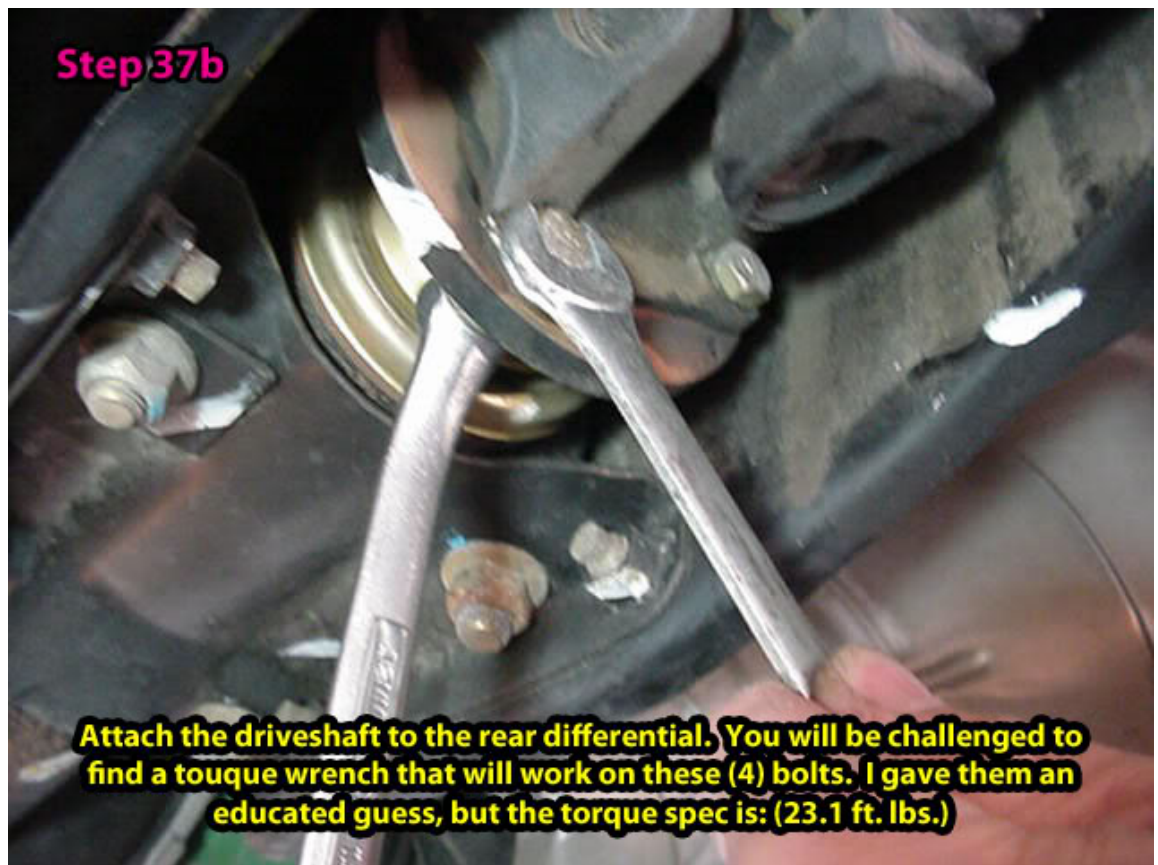
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**Step 37a**



**Next part... raise and support the driveshaft into position under the car. Oil the drive shafts machined yoke and slide it onto the output shaft of the tranny. The drive shaft is fairly heavy so be careful not to damage the transmission rear seal on the way in. Slide it in until the center support bracket lines up with the mounting holes and install the (2) bolts. Torque spec: (38.3 ft. lbs.)**

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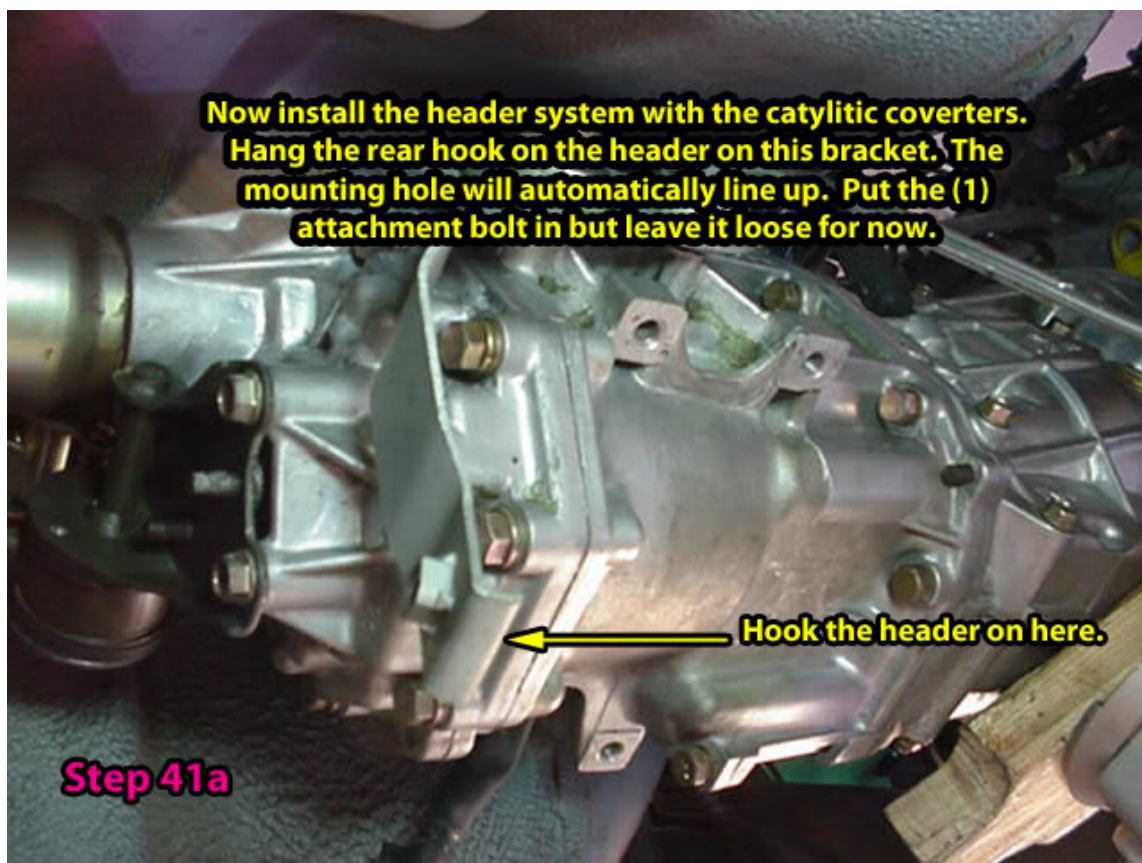


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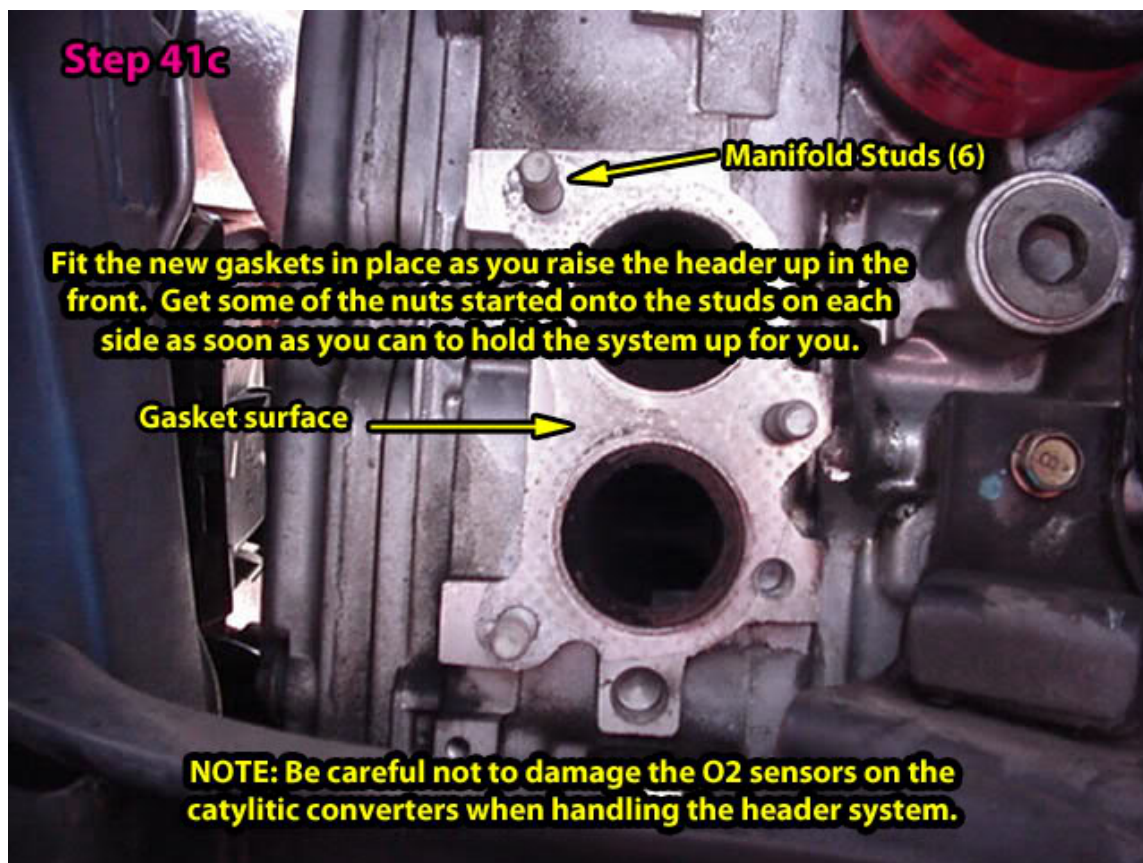


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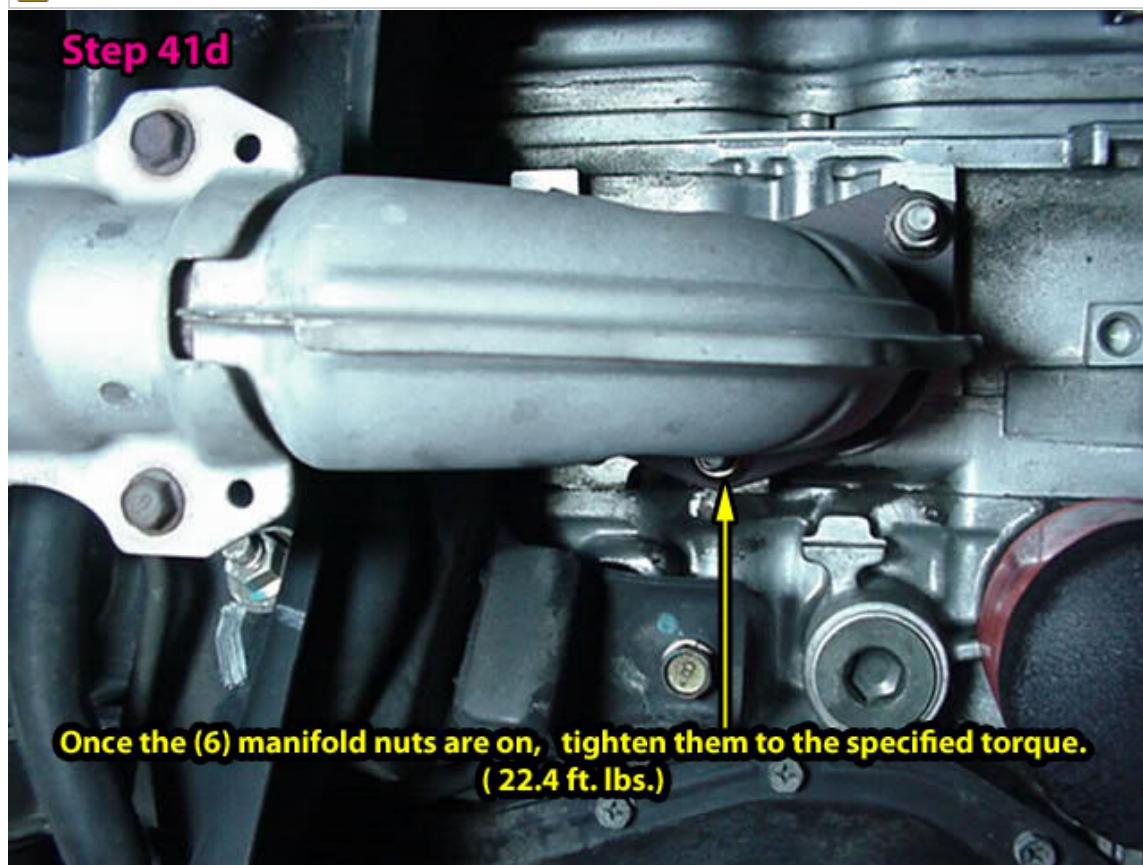


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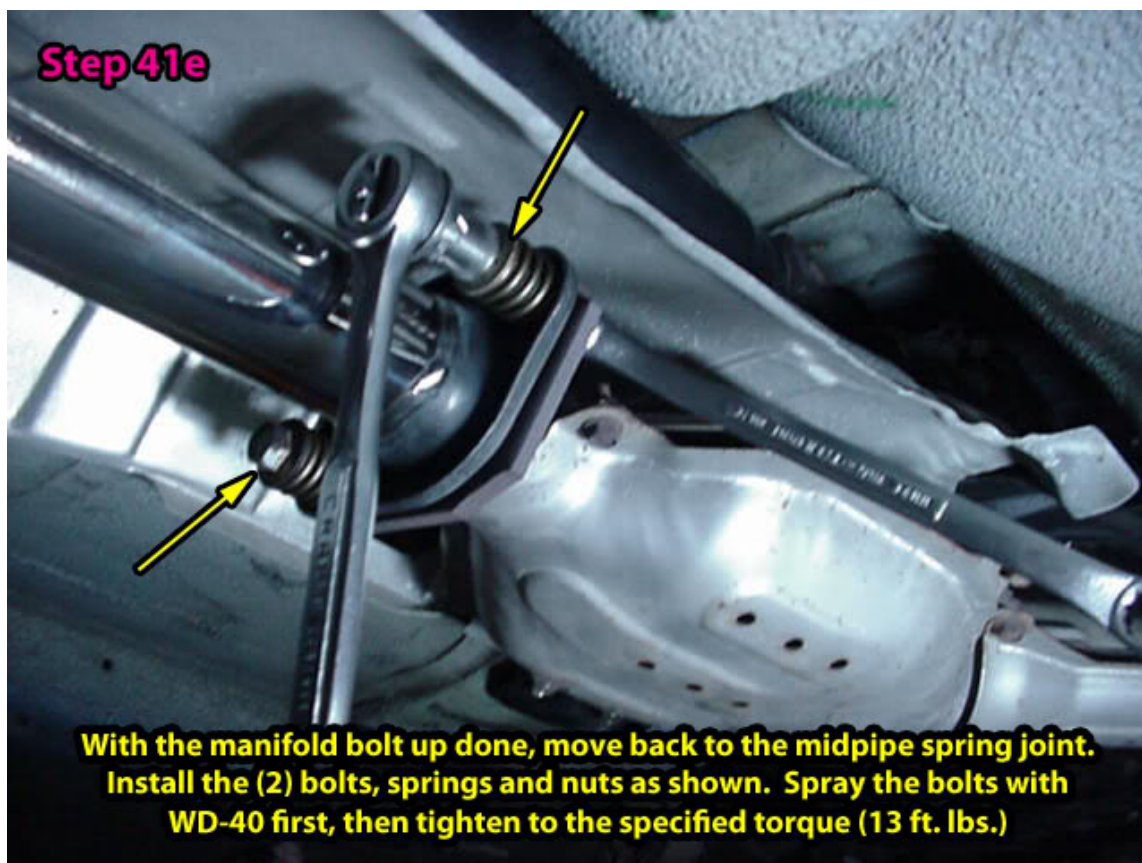




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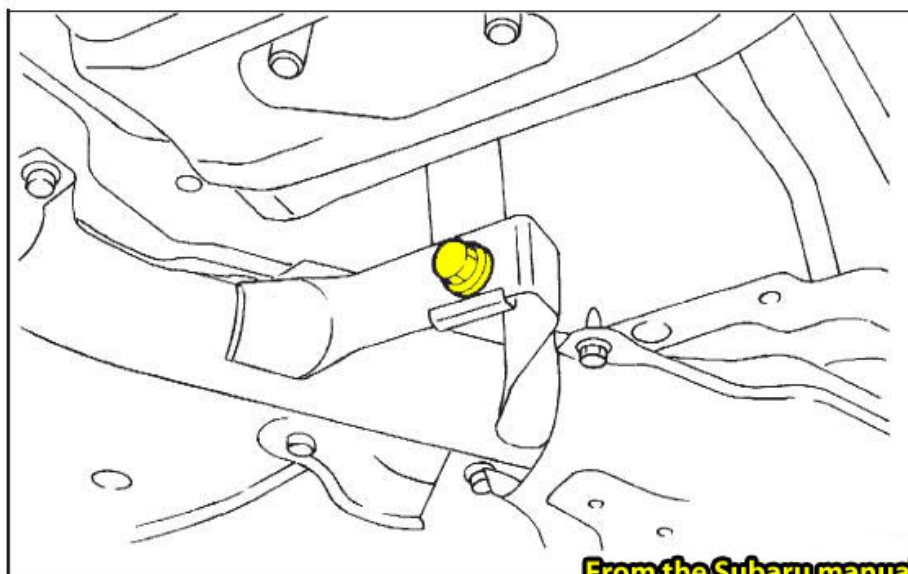
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### **Step 41f**

**For the final exhaust related task, tighten the exhaust hanger bolt to the specified torque. Use some WD-40 on this bolt too.**

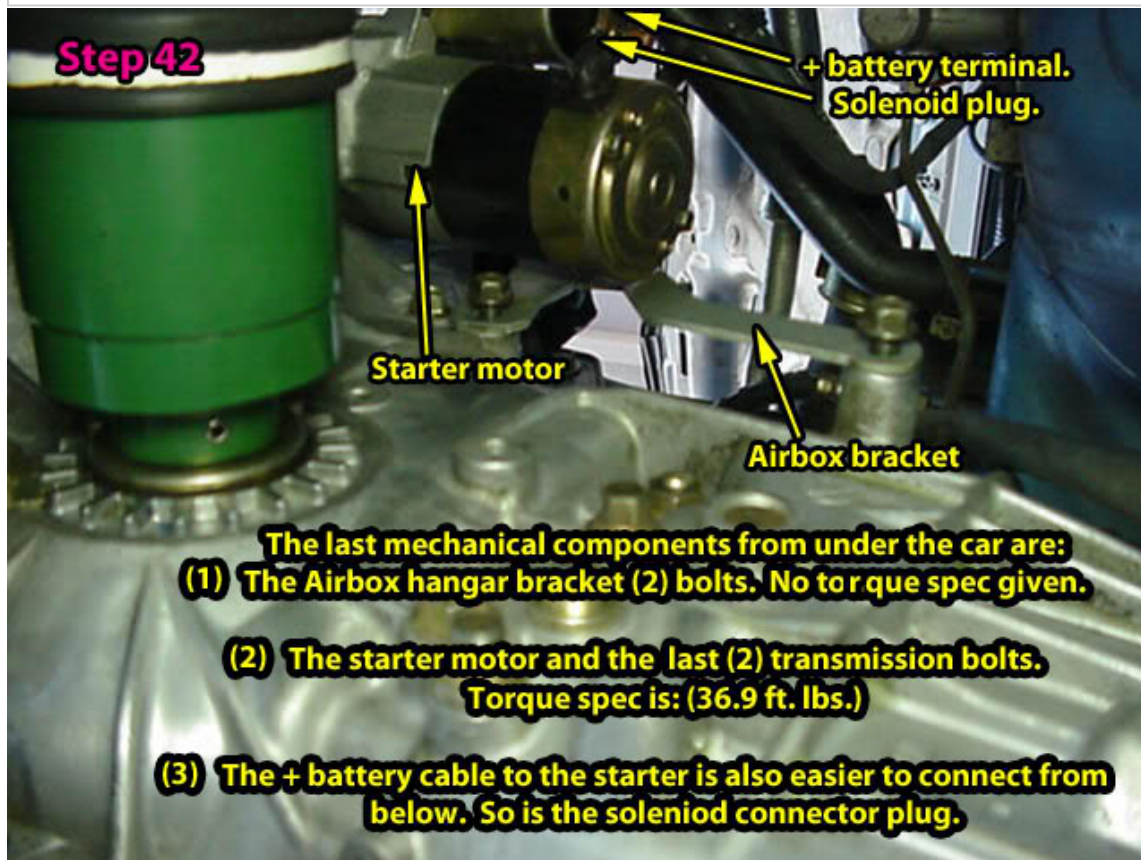
**Tightening torque:**

**$35 \pm 5$  N·m ( $3.6 \pm 0.5$  kg-m,  $26.0 \pm 3.6$  ft-lb)**





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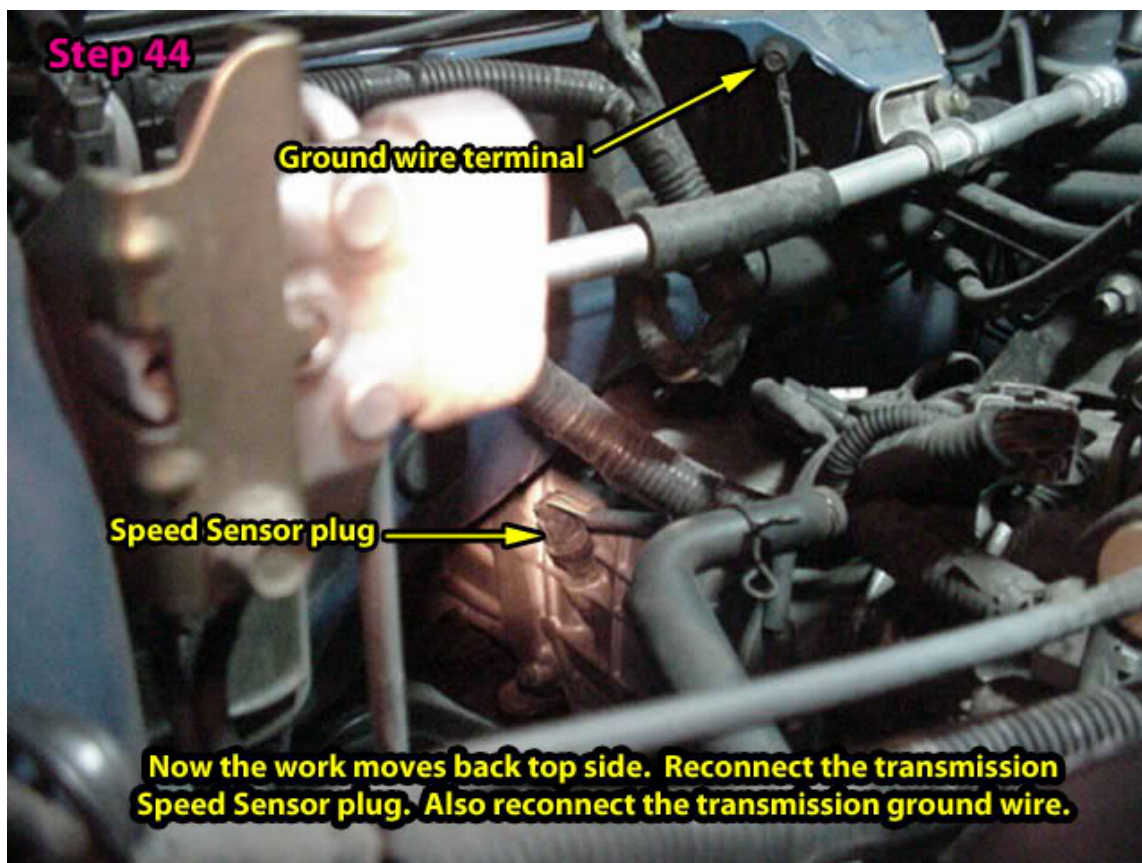


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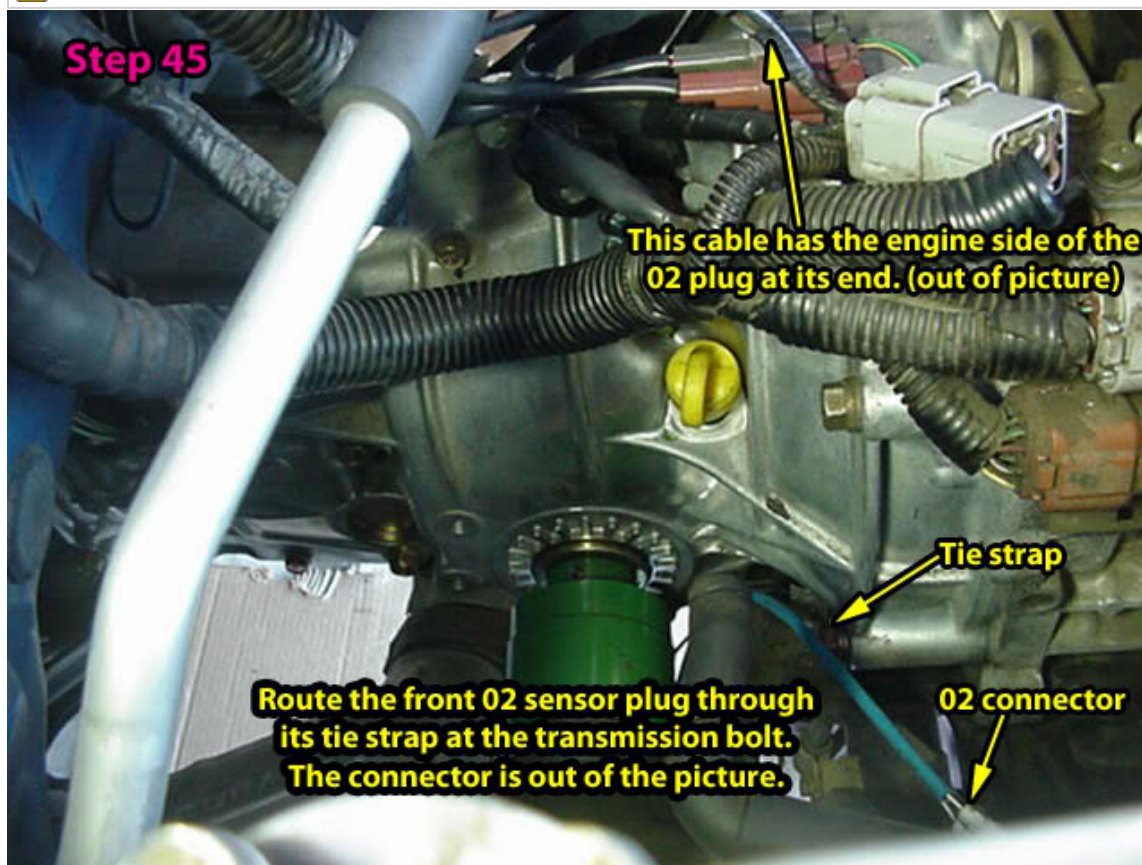


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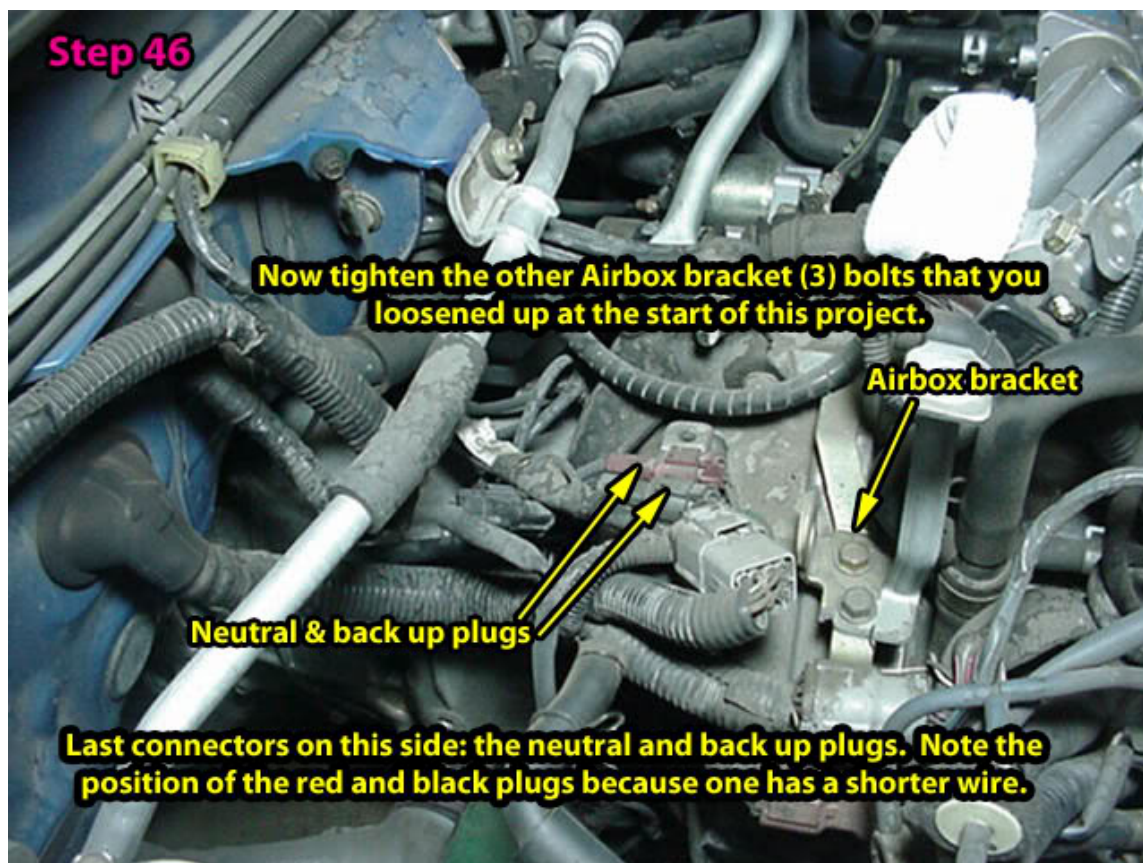


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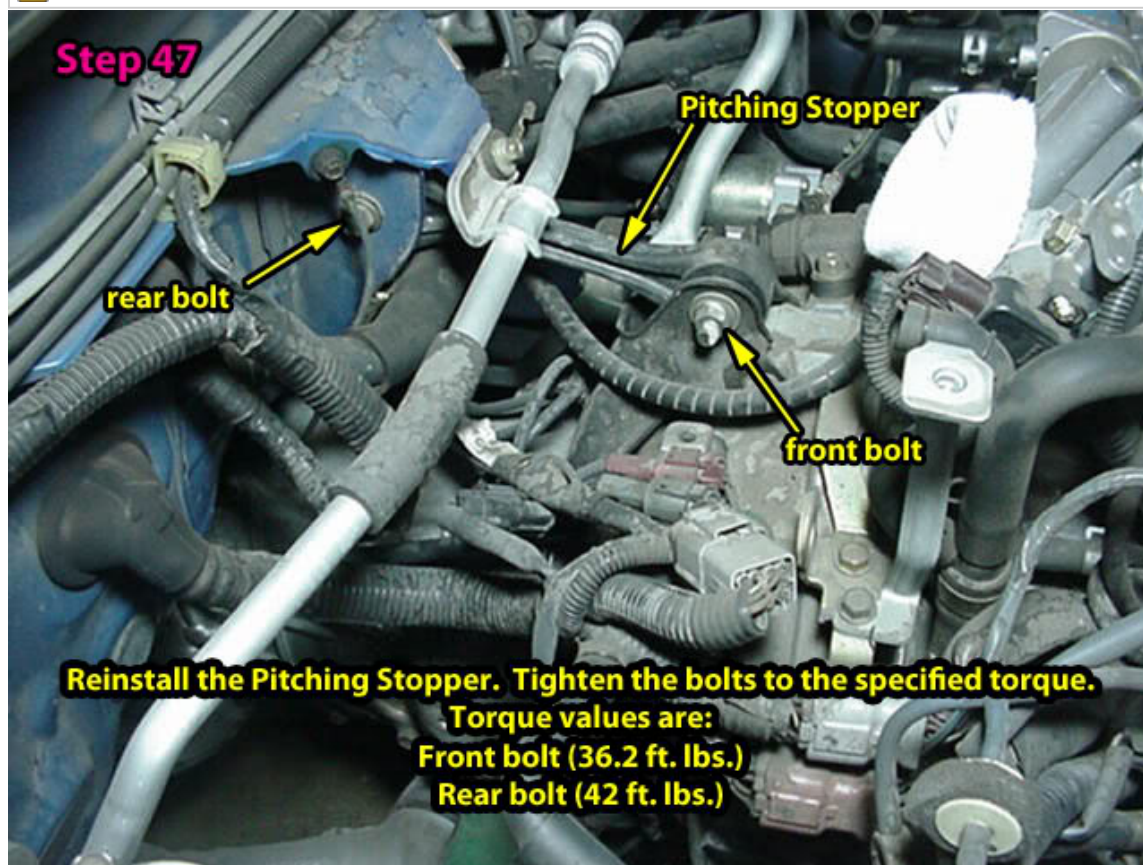


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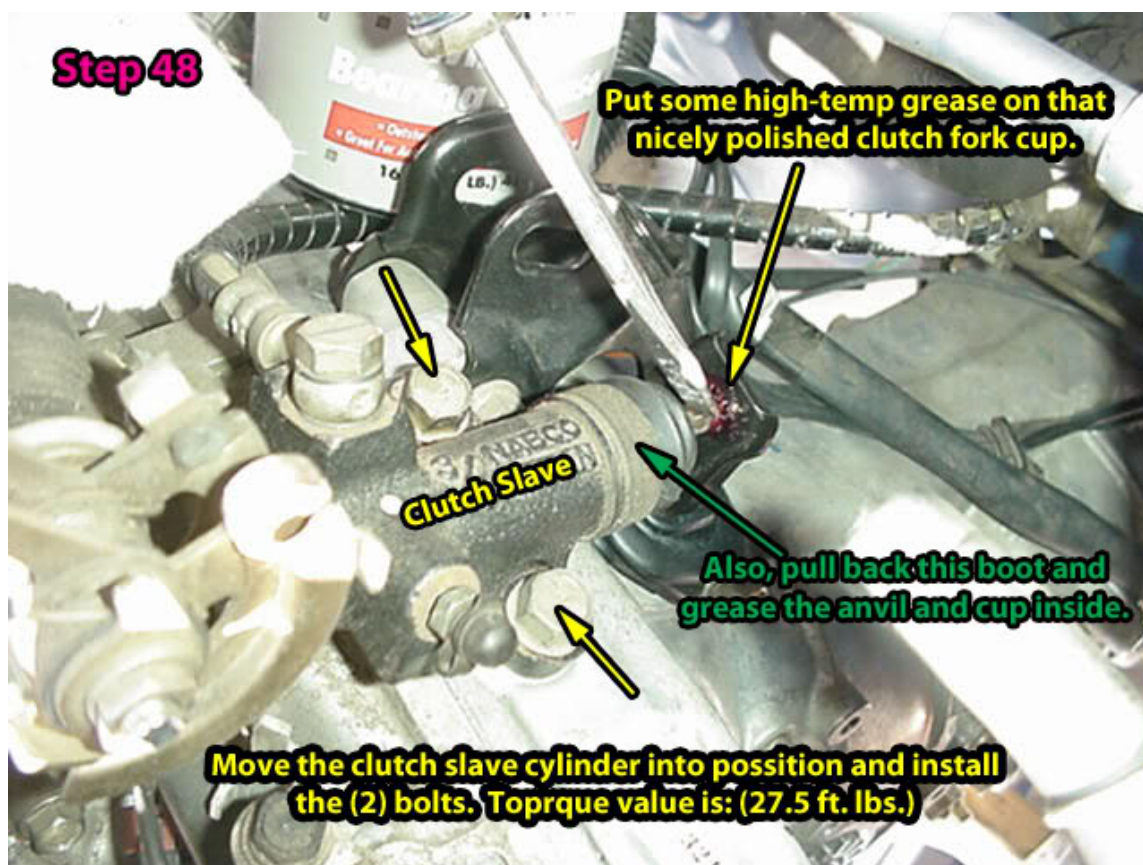


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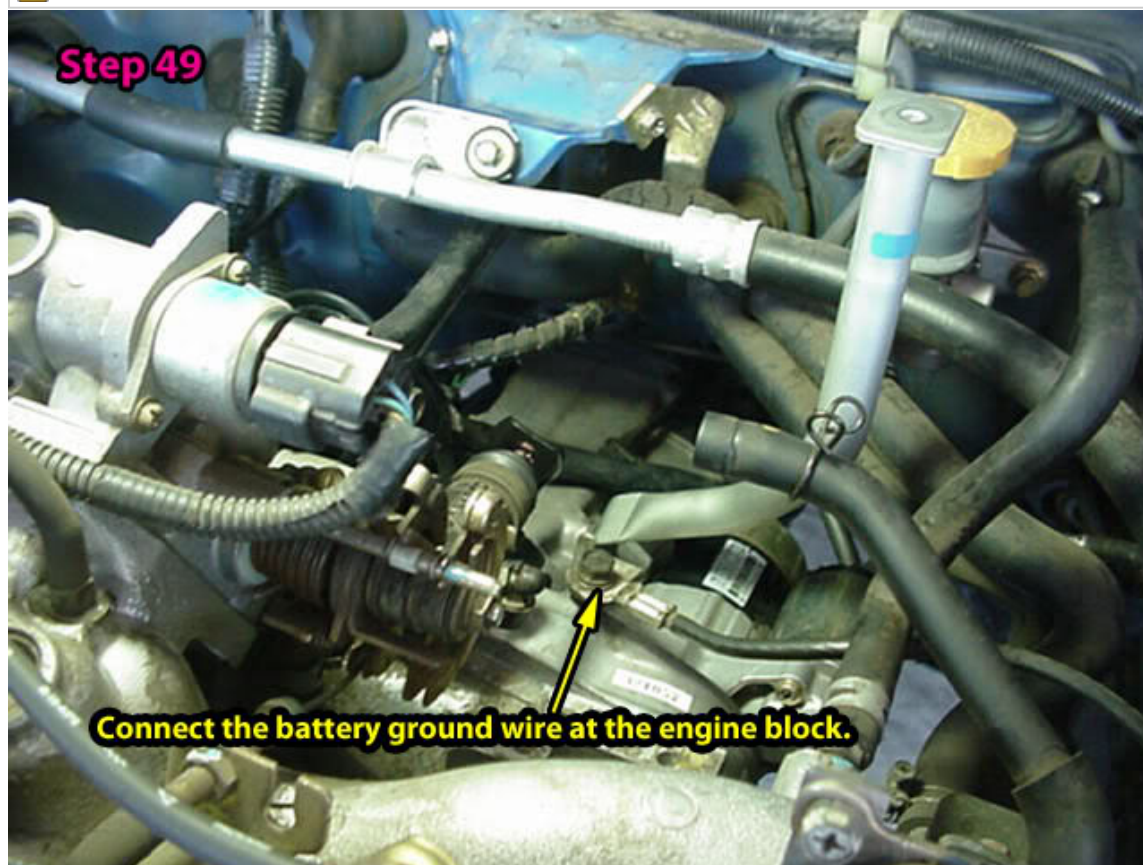


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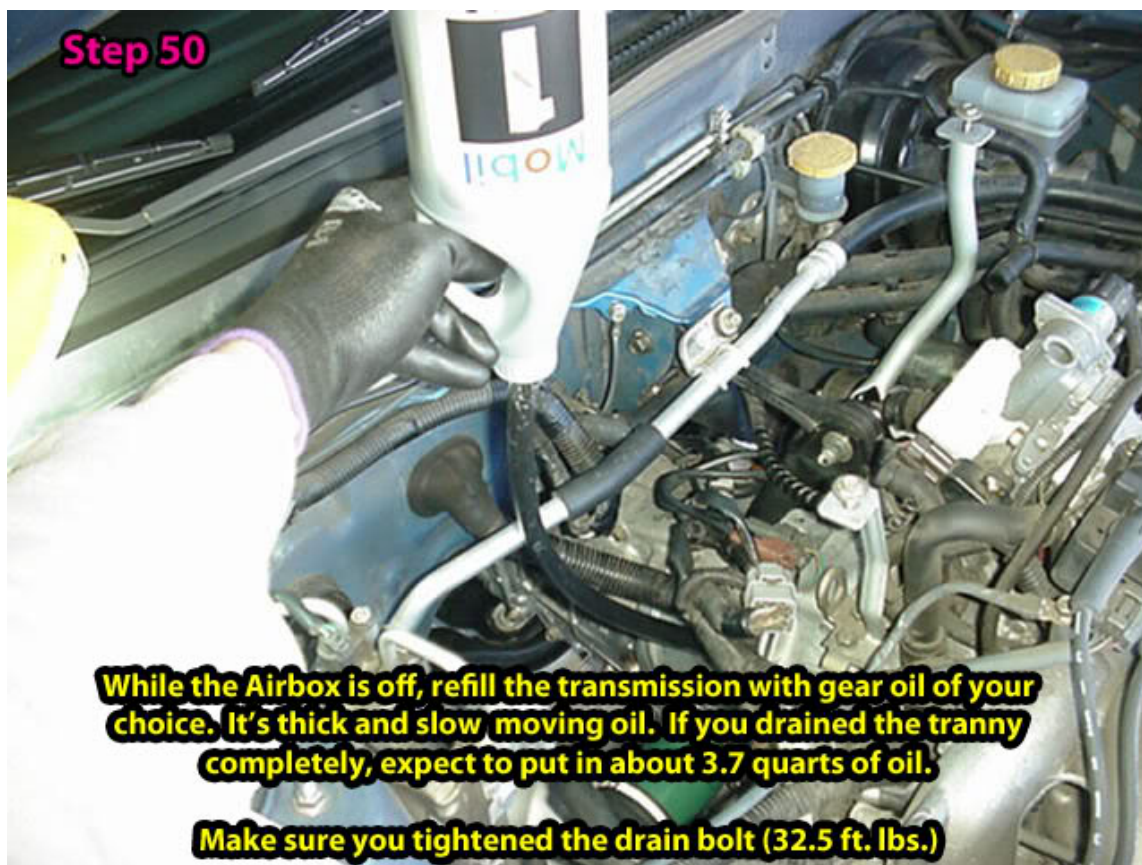


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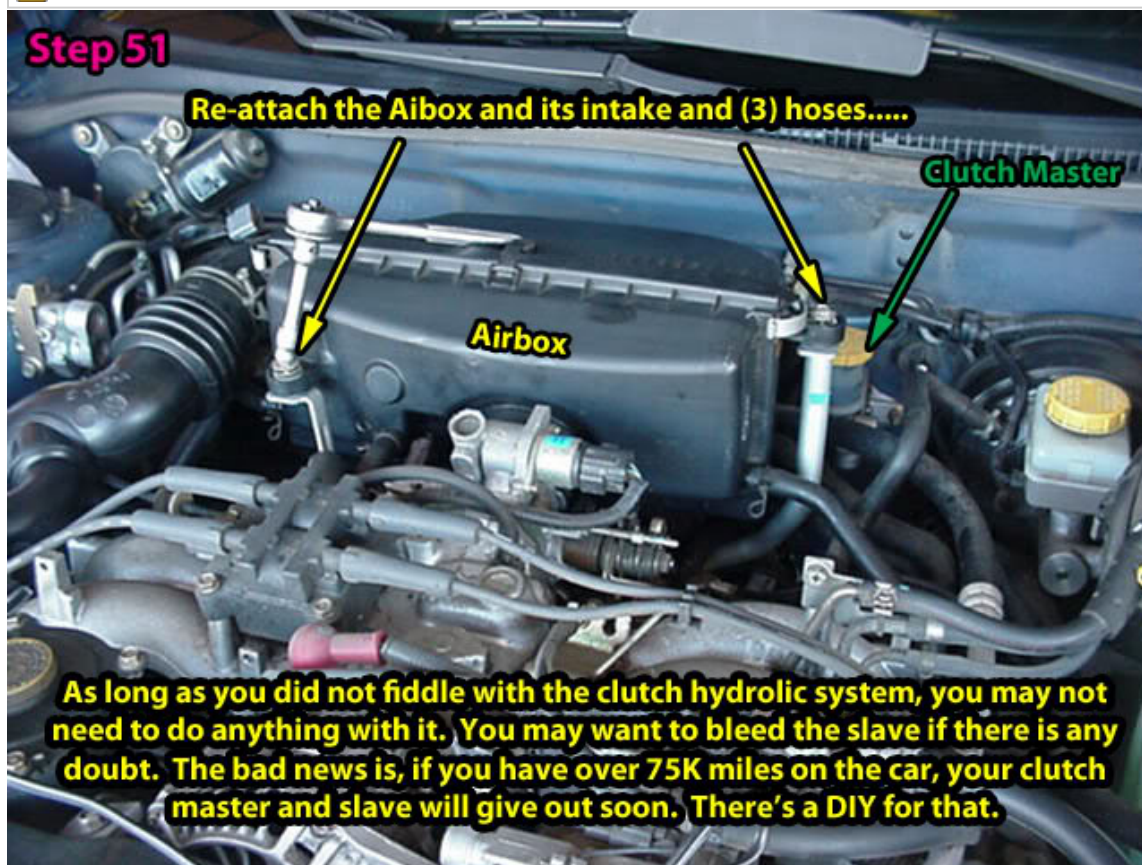


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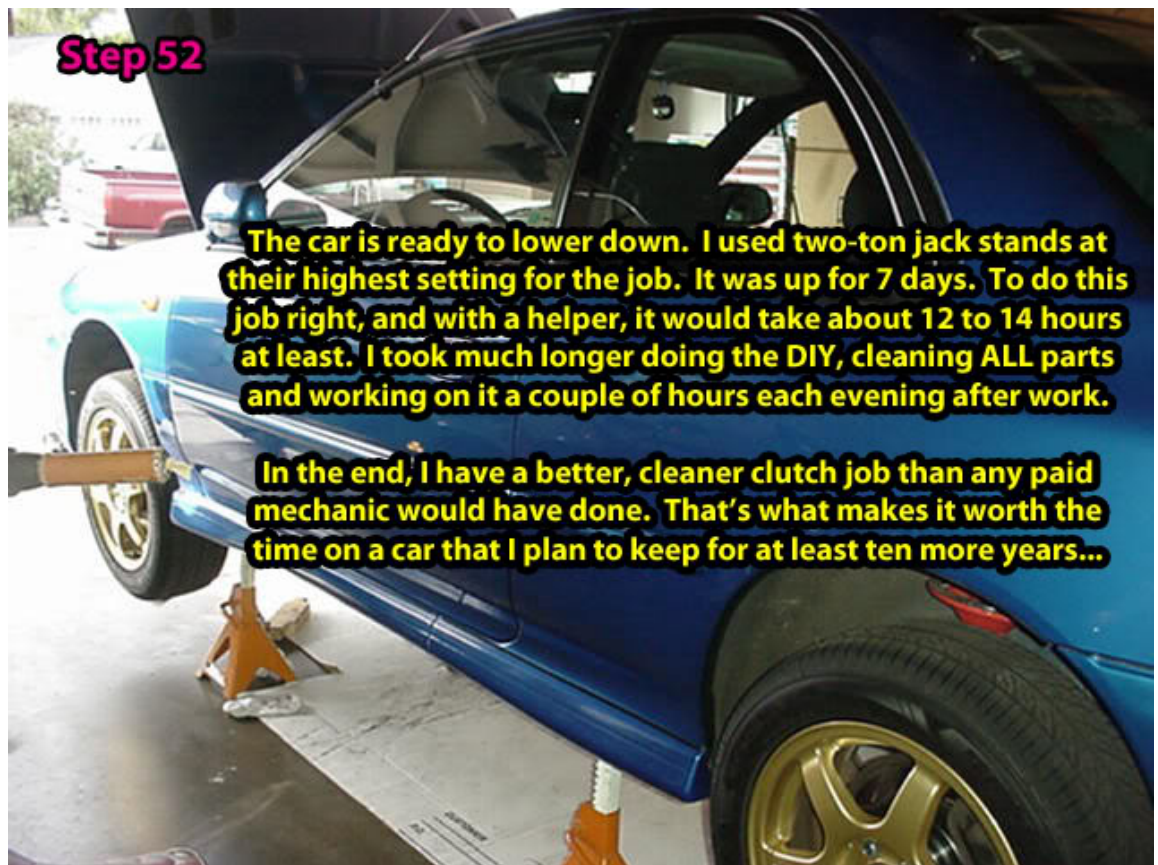




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**END of DIY**

1999 2.5RS. Original owner, WR Blue. 2013 BRZ Limited, WR Blue.



quote

02-13-2010, 07:27 PM

#2

**danimprs**

Premium Member

**Car:** '97 Impreza L

**Fav Mod:** Reliability

My: [Subaru Parts](#)

My: [Subaru Blog](#)

Join Date: Oct 2007

Location: PA

Trader Rating: (**12**)

Posts: 2,527



Wow. Excellent write up. Very well detailed and documented.

I was thinking about doing one of these that were more graphic than the written ones, but I'm glad you were able to do it. Too bad I have the bad habit of pulling the engine and doing this.



quote

02-13-2010, 07:34 PM

#3

**Supers587**

Wonderstud!

**Car:**

**Fav Mod:** Joshua

My: [Subaru Parts](#)

My: [Subaru Blog](#)

Join Date: Apr 2007

Location: In my house

Trader Rating: (**201**)

Posts: 12,195



Absolutely amazing! Very nice write-up.. one of the best I've seen. Thanks for taking the time out to put all this together. I'm sure a lot of people will put this to good use.

A big **+1** for you!



quote



02-13-2010, 07:51 PM

#4

**George.of.the.Jungle**

Baby♥Daddy



**Car:** 98L Wagon  
**Fav Mod:** BOOOOOOST!!  
 My: [Subaru Parts](#)  
 My: [Subaru Blog](#)  
 Join Date: Aug 2002  
 Location: Charleston, SC  
 Trader Rating: (**72**)  
 Posts: 26,236



quote

jeez! very good write up. very impressed. and very very thorough.

be careful who you open your house to.

02-13-2010, 07:53 PM

#5

**rallymedic**

2.0L

**Car:** 1998 OBS White/Dirt  
**Fav Mod:** Mudflaps / Rally Tires  
 My: [Subaru Parts](#)  
 My: [Subaru Blog](#)  
 Join Date: Dec 2009  
 Location: Central Valley California  
 Trader Rating: (**0**)  
 Posts: 94



quote

sticky!!! thanks dude!

Ward i think you were a little hard on the beaver.

02-13-2010, 07:54 PM

#6

**George.of.the.Jungle**

Baby♥Daddy



**Car:** 98L Wagon  
**Fav Mod:** BOOOOOOST!!  
 My: [Subaru Parts](#)  
 My: [Subaru Blog](#)  
 Join Date: Aug 2002  
 Location: Charleston, SC  
 Trader Rating: (**72**)  
 Posts: 26,236



quote

one thing that some of the older model L and brightons owners need to keep in mind, is that there are a few steps in there that are not the same. the main on i could see being the slave cylinder...as we don't have a wet clutch system. and there are only four bolts on the engine.

another thing to add, is that the support H brakcet doesn't need to come off unless you really really want to take it off. also helps to leave it on when sliding the trans out from under the car. also, if your exhaust system is all rusted and you don't want to risk breaking them, you can just undo the entire system and lay it on the ground, there's about 4 hangars, the one bolt on the trans and the header to engine bolts.

be careful who you open your house to.

*Last edited by George.of.the.Jungle; 02-13-2010 at 07:57 PM..*

02-13-2010, 08:41 PM

#7

**b1bflyer**

Never-Ending Project

**Car:** Type R ProjectMy: Subaru PartsMy: Subaru Blog

Join Date: Jan 2006

Location: Georgia

Trader Rating: **(16)**

Posts: 504



quote



Very well done DIY, thanks!

Depending on what other maintenance/repairs I'm doing determines if I pull the engine or the tranny for a clutch change, but this will definitely get used next time I pull the trans.

Ryan

Oversteer scares passengers, understeer scares drivers.

02-13-2010, 08:41 PM

#8

**voulo5**

2.5L

**Car:** 1997 Legacy Outback**Fav Mod:** Exhaust.My: Subaru Parts

Join Date: Apr 2009

Location: Greene County NY

Trader Rating: **(0)**

Posts: 227



quote



AMAZING write up. wish this was up in september i wouldve did my own clutch job >.>

02-13-2010, 08:48 PM

#9

**SR 25 RS**

2.2L Turbo

**Car:** sold it to Susie the Subie**Fav Mod:** AVO Turbo KitMy: Subaru PartsMy: Subaru Blog

Join Date: May 2006

Location: Oakland

Trader Rating: **(8)**

Posts: 3,218



quote



where were you in june?

Love the RS jack trick

/\Delta Sigma Phi : Zeta Omicron Chapter/\

02-13-2010, 08:55 PM

#10

**rsftw**

2.7L

**Car:** 1995 Impreza L**Fav Mod:** Tein Type RAMy: Subaru Parts

Join Date: Jan 2008

Location: King of Prussia, PA

Trader Rating: **(9)**

Posts: 321



quote



Pics with torque spec are awesome!!!! Thanks!

1995 Subaru Impreza L w/ JDM V2 WRX Swapped

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